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SOME CONCLUSIONS DRAWN FROM A SURVEY OF SEWAGE TREATMENT PLANTS.¹

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During the past 20 years many processes and devices for sewage treatment have been developed and actually demonstrated by being installed in various plants throughout the country. In many cases they have been abandoned by their real parents, the designing engineers, and apprenticed out to foster parents, who, while demanding maximum service, have cruelly neglected them. With this neglect, they have often failed to render proper service and have thereby come into disrepute.

THE SURVEY.

During the summer of 1920 the United States Public Health Service undertook a survey of 15 sewage treatment plants, located in 12 cities in different parts of the country, and considered to exemplify different processes and different conditions. The objects of this survey were : (1) To obtain a bird's-eye view of the field of sewage treatment; (2) to secure basic data by which the efficiency of service could be judged; (3) to suggest some standard tests which might, without undue labor, be adopted at all plants so that results at different plants would be comparable.

The plants selected for the survey were, therefore, those which were felt to be representative, receiving reasonably careful and intelligent operation. The devices and processes employed at these plants included primary plain sedimentation, septic, hydrolytic and Imhoff tanks; fine screens; trickling, contact, and intermittent filters; secondary sedimentation; and activated sludge. It was originally planned to study chemical precipitation and Dortmund tanks, but they were for various reasons omitted from the schedule. At no plant visited was routine disinfection practiced.

The collection of the basic data was divided between an engineer and a chemist. The engineer secured the details of the design and construction of the plant, the population and industrial plants contributing to the sewers, the sewerage system, and other factors bearing upon the operation of the plant. He also took up the opera-

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tion, and in some instances special subjects such as the use of sludge as a fertilizer or soil builder. The basis of this part of the survey was a 21-page questionnaire. Plans of the plants were secured for use in the preparation of the final report.

The chemist spent from 10 days to over two weeks at each plant analyzing an average of 12 series of 24-hour samples. These samples were composed of portions taken each hour before and after each phase of the treatment. They were stored on ice during the period of collection. Sufficient laboratory equipment to perform all the selected determinations was shipped from place to place by the chemist. This work was (at all except four plants) done by the same chemist, assuring identical methods and eliminating the personal equation in the comparison of results from any two plants. The analytical work at the four plants not visited by this chemist was done by men who had received very detailed instructions from him.

The analyses selected for routine on this survey were not those which would be recommended for a plant operator. It was desirable and possible to include some analyses which were considered to be of little value for operating purposes, such as the chlorides, and others which were of doubtful value, probably not giving sufficient information to justify the labor involved in making them. No nitrogen determinations, other than nitrates, were made at any except the activated sludge plants, where the ammoniacal nitrogen determination is of value in judging the efficiency of the aeration.

The following plants were surveyed: Two Imhoff tanks and trickling filter plants without secondary sedimentation at Atlanta, Ga., and one at Columbus, Ohio; a combination of plain sedimentation and Imhoff tanks followed by contact beds and final intermittent fine cinder or sand filters at Alliance, Ohio; Imhoff tanks with contact beds at Canton, Ohio (the last two having glass-covered sludge drying beds); hydrolytic tanks, fine screens, trickling filters, secondary sedimentation and sludge digestion tanks at Baltimore, Md.; Imhoff tanks, trickling filters and secondary sedimentation at Rochester, N. Y., Fitchburg, Mass., and Lexington, Ky.; septic tank, trickling filters and secondary sedimentation at Reading, Pa.; fine screens, Riensch-Wurl, followed by Imhoff tanks and disposal by dilution without oxidation at Rochester, N. Y.; and activated sludge at two plants at Houston, Tex., and at San Marcos, and Sherman, Tex.

Raw sewage.—Except at plants treating sewage from separate sewerage systems, the total flow was not ascertainable, because of the wastage by overflows or by-passes, which are used when the flow exceeds the maximum capacity of the treatment plant. The volume passing through the treatment plant was known fairly accurately at

all but the two smallest plants, where the flow averaged, as actually measured on the survey, less than a half million gallons daily.

The per capita volume treated averaged very close to the commonly used figure of 100 gallons per day, it being about 94. There were 9 with smaller and 6 with larger flows. Six were within 10 per cent of the average, five within 25 per cent, and four from 36 to 58 per cent.

The number of people served per sewer connection averaged 5.4, with variations from 3.8 to 7.1. The number of connections was not known at four places.

The character of the sewage received at the different plants varied, as would be expected, within wide limits. Suspended matter ranged from 101 to 297 parts per million, averaging 174. Except at plants where an unusual amount of industrial wastes is discharged into the sewers, as at Gloversville, N. Y., it is not probable that many municipal sewages are more concentrated than some of those studied, and sewages with less than 101 parts per million of suspended matter are seldom encountered. It is believed, therefore, that the survey included a good cross section of American sewages.

Solids settleable in two hours in Imhoff glasses ranged from 1.9 to 4.9 c. c. The values obtained from this determination do not correspond very closely with the suspended matter obtained by the Gooch crucible. Readings of 4.8 and 4.9 c. c. were obtained with sewages containing 261 and 264 parts per million of suspended matter, whereas only 2.7 c. c. were settled from the sewage containing 297 parts per million, and 2.0 c. c. from the least concentrated sewage containing 101 parts per million, and also from two other sewages containing as high as 226 parts per million.

The oxygen-consumed values, by the 30 minutes in boiling water method, ranged from 24 to 69 parts per million, averaging 44.

The 5-day biochemical oxygen demand averaged 114 parts per million, the maximum value being 190 and the minimum 67.

Imhoff tanks.—While Imhoff tanks were in use at 10 out of the 15 plants, at two plants the effluent from the Imhoff tanks was mixed with that from other types of tanks with which they operated in parallel, and the samples analyzed were the mixed effluents. On the whole, the Imhoff tanks performed their function of removing suspended matter very satisfactorily, the average removal amounting to 59 per cent. At only two plants was it below 60. These being 37 and 40, pulled down the average. Accompanying this the biochemical oxygen demand was reduced 42.5 per cent, and the permanganate oxygen consumed 36 per cent. The last two figures are rather interesting in that the reduction of the 5-day oxygen demand was greater than that of the oxygen consumed. Studies of industrial wastes by the United States Public Health Service at Cincinnati,

Ohio, have indicated that the removal of solids affected the oxygen consumed to a much greater degree than the oxygen demand.

As affecting subsequent treatment, the actual amount of suspended matter in the tank effluent is of more importance than the per cent removed by the tanks. The Imhoff tank effluents at half the plants contained between 60 and 70 parts per million; three contained more, the highest being 119, and one contained only 40. The effluent containing 119 parts per million received no subsequent treatment. Detention periods for normal flows averaged about four hours, computed on a total displacement basis, and, with this detention period, the velocity averaged about 0.6 foot per minute.

Foaming appeared to be more of an occasional nuisance than a serious difficulty of operation. With but one or two exceptions, most of the tanks foamed at one time or another, but relief could be obtained by the withdrawal of sludge. This method was accepted by all the plant operators as the only one capable of giving permanent relief.

The capacity of the digestion chambers, below the overlap of the slot, averaged for all 12 installations 1.3 cubic feet per capita served; but omitting two plants at which this factor was purposely made unusually large, both being $2\frac{1}{4}$ to $2\frac{1}{2}$, the average for the remaining 10 plants was 1.1.

Considering the variations in the character of the sewages entering the tanks at different places, and the differences in the many design factors, it is not possible to compare the efficiencies of tanks at different plants on the basis of any selected design factor. In a general way, it seems that refinements in minor features do not materially affect operation.

Trickling filters.—Trickling filters were studied at eight plants. At six they were preceded by Imhoff tanks; at one by hydrolytic tanks, with a small admixture from Imhoff tanks; and at one by a septic tank. The depth of the filters ranged from 5 to 10 feet; but at six of the eight plants the variation was from 5 to 6 feet.

The rates of filtration fell for an equal number of plants above and below 2 m. g. d.; but at two of the four plants operating in excess of this rate, there was sufficient filter area available to effect rates below 2 m. g. d., if it was all used regularly.

The physical appearance of the effluents was good at all except one plant, and this plant was the only one at which there was any appreciable pooling, though the surface layers of several others exhibited considerable clogging. When it is remembered that some of these filters have been in continuous operation for 10 to 12 years with very little expense other than occasionally going over the surface with a pick or harrow or flushing with a hose, there appears to be little reason to anticipate any material decrease in efficiency.

The analytical results obtained from all the effluents, with the exception of those from the pooling filter, were good. One of the most interesting results obtained from the studies of these plants was the uniformity of the final effluents. The raw sewages pretty well covered the range of concentration of American sewages. Preliminary settling, however, in tanks of totally different design and operation produced effluents of remarkably similar character, and the trickling filter effluents were all of such like composition that they could well be expected to have come from the same filter in a period covered by the survey as a whole.

Suspended matter determinations may be misleading or meaningless for trickling filter effluents, as this constituent varies so greatly with the cycle of operation of the filter, from the storing period to the unloading period. The character of the solids in the filter effluent is, moreover, totally different from that in the influent.

The filter is an oxidizing device and its efficiency must, therefore, be judged by determinations involving the presence of oxygen. Three such determinations were made: The oxygen consumed, the oxygen demand, and nitrogen as nitrates. This last determination is of relatively little value unless the amount of nitrogen in other forms present in the influent is known. Low nitrates in themselves mean very little.

Omitting the one clogged filter already mentioned, the oxygen-consumed values for the plants studied fell within the relatively narrow limits of 7 and 19, and the 5-day oxygen demand values between 4 and 20. The one pooled filter had an oxygen-consumed value more than twice the average of the other filters, and a 5-day oxygen demand about two and one-half times as great as the maximum value for the other filters.

Another interesting fact brought out by the analytical work was the reduction of the methyl orange alkalinity by the filters. At all except one plant this reduction amounted to over 30 per cent, and at one plant it was 92 per cent—from 99 to 8 parts per million. We could not undertake to obtain sufficient analytical data to definitely assign any reason for this reduction, but it may possibly be due to the use of CO_2 by bacterial activities in the filters which, when taken from the soluble bicarbonates in the influent, reduces these to insoluble carbonates, which are retained in the filter. This same reduction in alkalinity was found in all properly operating oxidizing devices, such as contact beds and aeration tanks of the activated sludge process.

Contact beds.—Contact beds were studied at Alliance and Canton, Ohio. While they did not produce results equal to the average of the trickling filters, the effluents were entirely satisfactory for ulti-

mate disposal with the dilution factors available. The oxygen-consumed values were 11 and 18, and the 5-day demand values 20 and 37, respectively, for Alliance and Canton. At neither place are these filters operated during the winter months.

Fine screens.—Fine screens were found at Rochester, N. Y., and Baltimore, Md. At Rochester, Riensch-Wurl screens precede Imhoff tanks and serve to keep large floating solids from the surface of the tanks and of Lake Ontario into which the Imhoff tank effluent is discharged. At Baltimore, rotating drum screens, similar to the Weand segregator, follow the tanks and serve to remove solids likely to clog the trickling filter nozzles. Their efficiency is best represented by a reduction of about 87 per cent in nozzles cleaned after the installation of the screens.

The analytical methods used in the survey failed to show any accomplishment by the screens at Rochester during the period of the survey. Suspended and settleable solids and oxygen consumed were slightly higher in the effluent than the influent, and the oxygen demand was slightly lower; but in none of the determinations was the difference of any significance. Computing from the screenings collected back to equivalent solids, the removal amounted to less than 1 or 2 per cent.

Activated sludge.—Four activated sludge plants were studied at three Texas cities. At Houston are the two largest plants in actual permanent operation in this country. At San Marcos is the reputed first municipal plant of this type; it is of very small capacity, as is also the plant at Sherman. The smallness of these plants makes them worthy of study, in view of the stated opinions of some engineers that this process is adapted only to large installations, where highly paid operators are in charge and where there is sufficient sludge to warrant its profitable recovery.

The San Marcos plant, treating less than 200,000 gallons per day, was the smallest plant studied. In actual man-hours it received much less attention than any of the other plants, with the possible exception of the Sherman plant. A good general utility man visited the plant every day to oil the machinery and make a brief general inspection. The influent was a weak domestic sewage, and it was passed through a septic tank before entering the aeration tank. The effluent ranked well among the best of those studied, with a suspended matter content of about 3 parts per million, an oxygen-consumed content of about 8, and a 5-day oxygen demand of 16, with ample contained oxygen in the form of dissolved oxygen and nitrates to more than satisfy this demand.

The cost of operation per million gallons naturally was high, amounting to about \$20, including interest on the money invested. This is equivalent to an annual cost of \$1,400, or about 56 cents per

capita served, which, considering the contributing population of 2,500, does not appear excessive.

This plant may be taken to illustrate the adaptability of the activated sludge process to small installations, and it brings up the question of the value of presettling the sewage before aeration in such installations, where the recovery of the commercial value of the sludge is not feasible.

The value of the activated sludge process for small installations may also be considered from another angle. It obviously is not entirely automatic. I feel that too much emphasis has been placed on the so-called automatic operation of other types of sewage treatment devices. Many, one might almost say most, small sewage plants have been installed with the idea firmly rooted in the minds of the city officials that the plants will run themselves. Certainly it must be admitted that the officials' actions bespeak such convictions. It seems that there might be a distinct inherent advantage in a process which must require some attention to operation. Motors and blowers or air compressors can not run day after day without oil at least. Moving machinery must be cared for. To insure a daily visit to the plant is of real value.

It appears possible that the activated sludge process may find its greatest field of usefulness in small installations rather than, as is at present held, in the large ones. In small installations, and especially with presedimentation, the sludge problem is greatly reduced, whereas with large installations, present opinions predicate its economic feasibility upon the commercial value of the sludge produced and the cost of its reduction to a commercial form.

The plant at Sherman, Tex., did not present as optimistic a picture as the one at San Marcos. The effluent was comparable with that from the already mentioned pooling trickling filter. The sewage was extremely concentrated, receiving night soil from a population about equivalent to that connected to the sewers, and this night soil was dumped into the sewers so close to the treatment plant that it reached the plant in an almost unbroken condition. The installation of a preliminary settling tank might greatly facilitate the operation of the aeration tank; but even then better operation would be essential to produce a uniformly first-class effluent.

Both of the two large plants at Houston produce excellent effluents. There is no longer any doubt of the capability of the process to effect adequate treatment. The problem at Houston, as at all large plants of this type, is the ultimate disposal of the sludge produced. There are great possibilities and promise of ultimate solution of this problem, but so far no sludge-handling plant has operated sufficiently to demonstrate either success or failure. No new data on this subject could be secured during the survey. The attitude

of most engineers still remains a mixture of anticipation, hope, and doubt.

Utilization of sludge.—Utilization of sewage sludge usually carries the idea of some ambitious scheme for the preparation of a market fertilizer from the sludge which will result in large financial returns. Sludge for the most part takes the extremes (a) of being no earthly good, a valueless waste, a liability to dispose of; or (b) of being possessed of so much value that it must pay not only for its own disposal but also for a portion of the cost of the treatment of the sewage. The saving of the expense of hauling the sludge from the plant to a dump and any small revenue for its sale have in most places not been considered worth the trouble of creating a local demand.

At three of the plants visited—Alliance and Canton, Ohio, and Rochester, N. Y.—the sludge is all used by local farmers. At the time of the survey Rochester was the only place where any charge was made for the sludge, but at the other two places the growing demand will probably eventually give to the sludge a commercial value.

The psychology of disposal to local farmers has recently been well expressed by Mr. N. A. Brown, of Rochester, when he said that as long as sewage-treatment officials themselves tell the farmers that the sludge has little if any fertilizing value, the farmers will not be inclined to haul it away, but that if the farmers see that the officials think it worth selling, they will not only haul it away but will pay a price for it.

The average farmer is practical when it comes to hauling fertilizer. If he does not get any benefit, he stops using it. And yet at the three plants visited and also at Lexington, Ky., farmers are calling for the sludge year after year, and taking ever-increasing amounts.

A sewage-plant operator objected to my use of the word "sludge" as "fertilizer" when referring to the value of sludge to growing crops. To him fertilizer meant the three plant foods—nitrogen, phosphates, and potash—and the value of sludge had to be judged by its content of these ingredients, and by them alone. This is a common attitude, which I feel is the wrong one to take. It is well recognized that manures, horse litter, and barnyard compost produce greater results than can be expected from their nitrogen, phosphates, and potash constituents as determined by analysis. For total content of these three plant foods, sludge can compare very favorably with manures. Both form humus and build soil by improving its texture.

Some experimental work has been done to test the value of sludges by their actual effect on growing vegetation; but I can not feel that any have been extensive enough, on a large enough scale, or with proper control to justify the prevailing low opinion in which sewage

sludges are held. The American Society of Municipal Improvements and other organizations have by resolution called upon the Department of Agriculture to conduct actual large scale tests. If such tests are made, it is to be hoped that a part of them will be run with sludge as sludge and not solely as a vector for the three plant foods. The survey of the sewage-treatment plants has made me believe that the whole value of sludge can not be stated in the analyses of nitrogen, phosphates, and potash.

One need not be an expert in farming to form an estimate of the benefit of sludge to grasses, wheat, oats, and other crops at Canton, Ohio. It is written in the fields so that he who runs may read. Unfortunately, none of the results obtained by the farmers can be converted into quantitatively controlled figures. One farmer stated that by actual weight he obtained with two cuttings 34 tons of grass from 9 acres treated with sludge in a 49-acre field, while from the other 40 acres he had only one cutting, which totaled 42 tons. Whether there were other explanatory factors is not known; but this farmer considers sludge superior to barnyard manure and is each year hauling all he can.

It must be admitted that such reports are not in keeping with experience at some other places, and in themselves do not definitely prove anything; but they are worthy of consideration. They evidence the need for a more complete and more thorough study of the whole question than has as yet been made and indicate the advisability of placing just a little less emphasis on chemical analyses in rating the value of sludge as a fertilizer.

I do not want to give the impression that I consider sewage sludges market competitors of commercial fertilizers. But I do believe that at most sewage treatment plants a local demand for the sludge can be created on an actual value basis which will not only be the means of the ultimate disposal of the sludge but will produce a revenue which will, at least partially, pay for the cost of handling the sludge after its removal from the tanks.

There are three possible causes for failures of sewage treatment plants: (1) The processes may not in themselves be capable of producing a good effluent; (2) the design of the individual plant may be at fault—capacities of the devices inadequate to handle the load placed upon them; and (3) poor operation or, as is often the case, no operation at all.

The first of these presents the most serious aspect. Opinions have been expressed, even among those familiar with sewage treatment, that the whole system and theory of sewage treatment practices has fallen down. This feeling has gained some ground among the uninformed who have come into contact with conspicuous failures of plants supposedly of the best design and supposedly entirely automatic.

The second cause of failure is restricted to individual plants and can be largely eliminated when the public and especially city officials thoroughly understand that the designing of treatment plants is a specialized branch of professional engineering and that such plants are not a part of the city's plumbing system.

Finally, failures due to poor or to no supervision of operation will gradually be reduced by education and expensive experience.

This 1920 survey by the Public Health Service was primarily concerned with the first and most serious alleged cause of failure. For this reason the plants selected for study were those which were considered to have been properly designed by engineers versed in the principles involved and which were receiving good or at least reasonable attention and operation.

It was originally planned to continue the studies in subsequent years, specializing in plants where design was at fault and where supervision of operation was obviously below a required minimum. It was also intended to study the adaptability and efficiency of the different principles of treatment at smaller installations than those studied in 1920. These studies have, however, been at least temporarily abandoned.

REVIEW OF RESULTS OF THE SURVEY.

In reviewing the results of the survey as a whole, there does not appear to be much ground for pessimistic criticisms of general theories of sewage treatment on the basis of their failure to effect adequate purification. All municipal sewage must ultimately be disposed of by dilution in some body of water, and the purpose of treatment is to prepare the sewage so that it will not produce objectionable conditions in the receiving body of water or, in some cases, place an undue load on a water purification plant using the receiving body of water as a source of supply. To these may be added the protection of bathing beaches, oyster beds, etc.

The primary function of preparing sewage for disposal by dilution without creating objectionable conditions was the main objective of the plants studied. No bacteriological analyses were attempted.

With but one or two exceptions, physical observations and analytical results agree that the plants visited were accomplishing the main object of their existence. All plants were seen during the warm months, the critical period of the year. At only 2 out of the 14 operating oxidizing devices was the color reduced in the methylene blue putrescibility tests of the effluents, which were incubated at room temperature. At one of these two the samples stood up for three to eight days. Only four of them had biochemical 5-day oxygen demands in excess of 20, and all had contained oxygen to partially satisfy this demand. With any reasonable dilution factor

no objectionable conditions should be created with the effluents from the oxidizing devices studied. In addition to oxidation, the treatment processes removed practically all of the settleable solids.

I do not argue that present-day practices represent the last word in sewage treatment. New methods, it is to be hoped, will be developed—better methods than any we have at the present time. Those existing now are not perfect, but they are not deserving of the unfavorable reputation they hold in the opinion of those partially informed and of limited experience. This reputation is based on ignorance and the reaction of disappointment over the failure of plants to accomplish results which have been extravagantly and improperly promised by promoters and, unfortunately, in some instances by engineers.

It is unfortunate that few if any plant operators have time or facilities to undertake original work or carry on special investigations. Conditions as a whole are such that the field of sewage plant operation offers but little attraction as a life work. The aim of the ambitious plant operator is to become a designing engineer. The studies of the basic principles of sewage treatment have been, to a very large extent, made at testing stations built and operated for the particular needs of individual cities. Relatively few of these have been in the hands of men who had previously been in the operating field, and from them have been developed only a very limited number of men who remained for any length of time in the strictly operating field. There have been few operators capable of or interested in such temporary specialized work, and the men who have been fitted have not seen an attractive future in plant operation.

The engineers of but relatively few of the plants in this country have had opportunity to study intimately the operation of the plants which they have designed.

There is need for a closer connection between these two phases of the subject. There is need also for the development of a group of plant operators to whom must be given sufficient inducements to retain them in this field. Compare the number of capable trained sewage-plant operators with the number of equally skilled men in the field of water filtration operation. Sewage treatment, unfortunately, has been the stepchild of municipal activities.

The time of a plant operator is always filled, with plenty of work left over. It is vital, therefore, that his activities be confined to those essential to the proper operation of his plant. This requirement applies to the laboratory work as well as to any other work at the plant. Each routine analysis that the operator makes should be selected to give some definite information on the condition in the plant, and on the efficiency of operation of the various devices. Where several determinations give the same general information,

that one should be selected which gives it most accurately and with the least work.

The two functions of sewage treatment are the reduction of solids and the partial oxidation of the organic matter not removed with the solids. To these may be added, in isolated cases, the reduction of bacteria for the protection of a near water supply or bathing beaches, etc. In some cases the reduction of solids or of bacteria may be sufficient in itself, but the average plant is built for the first two objectives. The analytical determinations made should be selected, therefore, to tell the extent to which these two objectives are attained. The best determination we have to indicate the extent of the removal of solids is the suspended matter determination by the Gooch crucible. This determination on the influent and the effluent of the settling devices both primary and secondary, gives the data covering the main function of these tanks. The determination of settleable solids is much simpler and is advocated by some as giving the more nearly attainable efficiencies; but there appear to be uncontrollable factors and conditions in this method which limit, to a greater extent than the Gooch crucible method, its general application.

In the opinion of the men engaged on this survey, the best criterion by which to judge the efficiency of oxidizing devices is the oxygen demand by the excess oxygen method, stated in terms of the 5-day biochemical oxygen demand at 20° C. This method is possibly more elaborate and involves more technique than some of the other methods used to determine the biochemical oxygen demand, or than the oxygen consumed determination, but it has appeared to give the most enlightening and valuable information.

These two determinations can constitute the backbone of the laboratory routine of the average plant. With special methods of treatment, other determinations should be included as routine procedure, as, for instance, the ammoniacal nitrogen determination gives a most rapid method for control of the aeration processes at activated sludge plants. Of course, when bacterial removal is a function of the plant, total bacterial counts are essential for the proper operation of the disinfecting process.

It must not be inferred that the adoption of an irreducible minimum routine of laboratory work for all plants is advisable. Where facilities and time are available, other determinations should be added to the skeleton suggested. But there now exist at many laboratories elaborate routines containing the more tedious determinations, which give, when completed, very little information or data of use in the actual operation of the plant. These are extravagant users of the time of the plant operator—time which can be made to yield greater returns if devoted to other lines of activity.

Laboratory procedure at sewage plants has in a way, like Topsy, "just growed." Probably there are not two plants in the country, unless operated by the same man, where the schedule of analyses and the technique in making them are the same. Throughout the survey of 1920, our laboratory procedure was the same at all plants. At all except 2 out of the 15 plants, or 10 out of the 12 cities, some laboratory work was done regularly by local chemists. Our results, however, are, with the exception of the Gooch suspended matter and the Imhoff glass settleable solids determinations, not directly comparable with results obtained at any plant visited. Nor are the local results of any two plants directly comparable except in the two determinations mentioned. It is only by computation with average relation factors between two determinations or methods that any comparison of the functioning of the oxidizing devices is possible.

It is only natural that there should be a great reluctance at any laboratory to change methods, many of which may have been used for years and only by means of which can the results of future years of operation be compared with the past. Standardization can not come overnight, and should not be precipitately adopted. However, it is believed that the time is ripe to approach this subject with a little more assurance, to make definite selections of some one method of making different determinations, and to establish tentative schedules of routine from the irreducible minimum to those more elaborate at plants which are able to support them without sacrificing the physical operation of the plant. It is hoped that this survey may be a step in that direction, by furnishing comparative data covering a wide range of plants and a rather elaborate schedule of laboratory routine.

The future development of sewage treatment has need of more study than has been given in the past to the basic principles involved. Practical application has been made of phenomena which have, in many cases, been developed from experiments while their fundamental principles are only roughly understood. Their study in the light of the combined knowledge of the engineer, chemist, biologist, plant operator, plankton expert, and others will place the principles of sewage treatment on a firmer basis. Development does not necessarily mean the discovery of new unused principles; it includes the better understanding of principles already in use; for with this fuller knowledge will come more intelligent application of these principles.

Such investigations must include studies of conditions in the existing operating plants at which the theories of the laboratory must be given practical application. Surveys similar to this one made by the Public Health Service must be made to include more plants and more detailed study extending over longer periods of operation.

New problems and new ideas are continually coming to the front. Many of these can best be studied at existing plants where opportunities for study on a large scale are available. But others requiring special equipment and specialized laboratory work will probably demand study at testing stations. Industrial wastes, for example, require experimental work to be done at the point of origin.

For testing-station studies of domestic sewage, it would appear to be ideal to establish a permanent station, at which fairly large-sized units could be operated over long periods. The results of the 1920 survey indicate that the variation in raw domestic sewages at different places, where not complicated with industrial wastes of unusual quantity or character, is not a serious objection to restricting experimental work to the sewage of one locality.

At such a testing station new processes and devices, some of which are brought forward as commercial ventures with little authoritative data upon which to base any judgment of their value, could be subjected to at least preliminary tests—sufficient to eliminate those processes and devices the merits of which lie primarily in sales literature, based upon ignorance and imagination.

Such far-reaching and complete investigations of the scope suggested can not be undertaken by any one municipality, State, or section of the country. It must be national. The special studies at the central permanent laboratory and testing station must be fathered and supported by some national organization.

Around this organization should lie other cooperative bodies: First, a consulting board with experts specialized in different work, e. g., the various branches of chemistry, engineering, biology, sewage plant operation, etc., and second, a group of collaborators, including the engineering department of the State boards of health, universities, individual sewage plant operators, and other organizations or individuals.

Such a plan is not impossible. It has, in one form or another, been in the minds of and at times expressed and seriously discussed by men high in the ranks of the scientists versed in sewage treatment.

Investigations by such an organization would throw the light of definite knowledge over much of the present twilight zone of sewage treatment. They may not result in the discovery of any new short-cut processes—sewage may still remain a public liability—but we may expect them to effect appreciable economies in the treatment and disposal of sewage, to materially raise the standard of operation of treatment plants, and to protect the rivers, lakes, and other waters of the country from their improper use as diluents.

A PHYSIOLOGICAL TEST FOR THE ACTIVITY OF VITAMINE PREPARATIONS.

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Progress in the chemical isolation of vitamine depends largely upon the success of the physiological tests available for guiding the fractionations. Any improvement in the accuracy and rapidity of these tests is undoubtedly a matter of importance. The technique which has gradually been developed in the Hygienic Laboratory is believed to possess advantages which may be appreciated by others engaged in experiments on the isolation of vitamine.

The effect produced on fowls by vitamine deficiency was early utilized for studies of both the distribution of the antineuritic vitamine in natural foodstuffs and in fractions obtained by chemical operations. At first the curative effect of vitamine concentrates upon fowls, brought to the polyneuritic state by vitamine deficiency, was utilized as a test for the activity of the unknown sample. This has gradually been supplanted by a preventive method, which consists in adding measured amounts of the vitamine material to a vitamine-deficient diet and noting the amount required to replace the deficiency. This procedure has the advantage that birds in a normal condition are used, rather than those in an abnormal or what may, perhaps, be more properly described as a state of unstable nutritional equilibrium.

The most suitable bird to use for the tests is the common pigeon, and a satisfactory vitamine-deficient diet is polished rice. Upon such a diet pigeons soon begin to lose weight, and after about three weeks decline to some 60 to 70 per cent of their original weight and exhibit characteristic symptoms of polyneuritis. If, however, samples containing the antineuritic vitamine are administered daily or on alternate days to such pigeons, fed only on rice, no apparent change in their condition takes place. The presence or absence of vitamine will be indicated by comparing the weight curves of the birds receiving the vitamine with those receiving none—that is, with the control birds. In the past, whenever one or more samples were to be tested for their vitamine content, a group of pigeons was placed on a rice diet and measured doses of the samples were given to some of the birds, the others being retained as controls. At the end of the experiment, all of the birds were given a mixed diet to restore them to their initial condition. They could then be again used for a similar experiment if desired.

Considerable experience has shown that the tests can be conducted much more satisfactorily if all the birds on a rice diet are given

"activated solid"¹ on alternate days, in doses just sufficient to prevent an appreciable loss in weight. They thus become accustomed to the rice diet and reach a state approaching vitamine equilibrium. If now the doses of "activated solid" are replaced by those of the samples to be tested for their vitamine content, there will be a very quick response to any diminution of vitamine, and thus a very prompt indication of the character of the sample in question. The administration of "activated solid" can then be resumed, and the birds made ready for a second test within another 10 days or so. Proceeding in this manner a single group of pigeons can be used for periods of many months, and for testing large numbers of different samples. The group in use at this laboratory has now been on an exclusive diet of polished rice (with addition of active vitamine preparations) for more than six months.

The practical consideration underlying the adoption of the above plan was the observation that, whenever pigeons are put upon polished rice, some time is required for them to become adjusted to the new diet. When they receive polished rice for the first time they may eat excessively and show abnormal weight changes. When they are placed on this diet a second time, after a recuperation period on mixed grains, they refuse to eat until driven to it by hunger, and thus again exhibit abnormal weight changes. If kept on rice constantly, they appear to standardize their eating habits, and irregularities in the weight curves are greatly diminished.

The question whether rice plus fuller's earth containing adsorbed vitamine is an adequate diet for pigeons, has not been taken into consideration in the present test. Although the birds do not mate and reproduce, they show no perceptible signs of malnutrition for relatively long periods and are constantly in a state in which the withdrawal of vitamine is manifest by prompt and definite effects. It is believed that an attempt to modify the diet by addition of constituents intended to improve its quality might have the effect of diminishing the accuracy of the test.

In a practical way it has been found convenient to keep groups of 10 or more pigeons in compartments of some 300 cubic feet in volume. A bottle with wide mouth, clamped in an inverted position over a small pan, makes a satisfactory receptacle for the rice supply. A fairly large tank through which a slow stream of water flows should, if possible, be provided. A thin layer of coarse sand is spread over the floor of the compartment and should be renewed frequently.

Each bird is provided with a numbered leg band and is weighed on each alternate day, and immediately after weighing it is given, by mouth, the "activated solid" or sample being tested. On plotting

¹ See Improved Method of Preparing Vitamine-Activated Fuller's Earth. By A. Seidell. Public Health Reports, 37, 801 (Apr. 7, 1922). Reprint No. 738.

the series of weighings, a clear picture is obtained of any change which may take place in the condition of the bird.

The vitamine samples are most conveniently administered in gelatine capsules, each being moistened with water immediately before being given to the pigeon. For this reason it has been found advantageous to convert all samples of vitamine to their adsorption combination with fuller's earth. The dry powder thus obtained can be readily measured in capsules of standard size instead of being weighed. This greatly simplifies the preparation of the capsules for dosage, and provides against deterioration or change in the activity of the vitamine during the period of the test.

The procedure for preparing the vitamine-fuller's earth adsorption combination for physiological tests consists in dissolving the weighed sample in about 500 c. c. of water, or diluting a solution containing a known amount of vitamine solids to about this volume, and adding such an amount of fuller's earth that each 0.1 gm. corresponds to 1, 2, or more milligrams of the vitamine solids present. The mixture is actively shaken during one-half hour or longer, filtered on a Buchner funnel, and washed with water, then alcohol, and finally with ether to facilitate rapid drying. The dried sample is then measured into gelatine capsules, each containing 0.1 gm. or more, as the case might be, and these capsules are given to the pigeons after each weighing as described above. In this way all conditions of the test are kept uniform and the only variable is the antineuritic activity of the unknown sample.

In regard to the delicacy of the test, it has been found that unmistakable differences in the weight changes of the pigeons can be detected for quantities of sample, varying by one or two tenths of a gram. Thus, for example, pigeons receiving 0.3 gm. doses of a fuller's earth-vitamine combination, corresponding to 3 milligrams of the unknown sample, have been found to remain stationary in weight, while those receiving 0.2 gm. doses, corresponding to 2 milligrams, declined noticeably, and those receiving 0.1 gm. showed a more rapid decline. Differences which have been obtained between the effects of 4 and 6 milligrams of adsorbed vitamine solids and between 7.5 and 10 milligrams are other examples of the delicacy of the method.

It has been found that the time required for detecting the differences, resulting from variation in dosage, is shorter than before adoption of the technique here described. Positive results can usually be obtained within two weeks, and frequently within a shorter time. Samples devoid of vitamine are identified most promptly.

There is, of course, a necessity for caution against giving doses in excess of the amount required for maintenance of weight. Such

quantities are not indicated by the test, and the best practice requires that for each sample being tested at least some of the pigeons receive slightly deficient doses. The matter of the selection of the dosage of unknown samples is, of course, the principal difficulty, and accurate results require repetition of the test with repeated adjustments of the dosage. In general, each sample should be tested in two or more different dosages and not less than three pigeons should be used for each dosage.

Although the method described above has been developed particularly for controlling the fractionation steps in the attempts to isolate vitamine from brewer's yeast, it can be used equally well for testing the antineuritic vitamine content of a great variety of vitamine preparations. In such cases, the vitamine portion of the sample should be obtained in the form of an aqueous solution (by any appropriate means), and this solution should be agitated with fuller's earth. The vitamine-fuller's earth adsorption combination is then removed and obtained in the form of dry powder, as already described. The protective effect of this product, as compared with that of standardized "activated solid," will give a satisfactory estimate of the vitamine content of the unknown material.

In the course of experiments made on the isolation of vitamine from brewer's yeast, some evidence was obtained as to the approximate weight of active material required to replace the deficiency of a polished rice diet for pigeons. This evidence was based upon a comparison of the milligrams of nitrogen (determined by the Kjeldahl method) present in samples of fuller's earth containing adsorbed antineuritic material responsible for the protective action. It is provisionally assumed that the pure antineuritic vitamine actually contains nitrogen, although it should be stated that this assumption is not proved, as pure vitamine has not been isolated.

Experiments have shown that a sample of the new "activated solid,"¹ which contains 1.5 per cent of nitrogen protects pigeons on a rice diet in doses of 0.1 gram given on alternate days. On the nitrogen basis, the protective dose is, therefore, 1.5 milligrams. Using "activated solid" prepared by the old method and containing 2 per cent nitrogen, the average protective dose was at least 0.15 gram, which, on the nitrogen basis, corresponds to 3 milligrams. It is, therefore, apparent that at least one-half of the nitrogen in the old sample is not present as vitamine nitrogen.

In regard to what proportion of nitrogen in the "activated solid" prepared by the new method is present in vitamine combination, some light is obtained from the following experiment. The extracted material, removed from the sample of the new "activated solid" by

¹ Seidell. *Loc. cit.*

barium hydroxide extraction, was readsorbed by being agitated with a fresh portion of fuller's earth. Tests of this material, which contained only 0.17 per cent of nitrogen, showed that protection was afforded by doses of 0.3 gram. This, on the nitrogen basis, corresponds to 0.51 milligram instead of 1.5 milligrams nitrogen found for the original "activated solid," and, therefore, indicates that not more than one-third of the nitrogen in the "activated solid" prepared by the new method is present in vitamine combination.

In view of this result, it appeared of interest to ascertain what is the lowest obtainable amount of nitrogen capable of replacing the vitamine deficiency of a polished rice diet for pigeons. Nitrogen was, therefore, determined in those fuller's earth preparations which had been found, by comparative tests, to protect pigeons in doses corresponding to the smallest amounts of active material. Of these the most favorable sample was one which had been made by the fuller's earth adsorption of the highly active silver-free residue obtained from an ammoniacal silver nitrate precipitate. It contained 0.08 per cent of nitrogen, determined by the Kjeldahl method, and protected in doses of 0.1 gram given on alternate days. Therefore, in this case the deficiency of the rice diet was replaced by doses of approximately 0.08 milligram of nitrogen in vitamine combination given on alternate days, which is equivalent to 0.04 milligram daily.

On the basis of estimations of nitrogen in samples of highly active vitamine fractions obtained from silver precipitates, and after deducting the nitrogen present in these residues as nitric acid, it is probable that the free vitamine base contains somewhat more than 16 per cent of nitrogen. If it is assumed that 20 per cent is present, the 0.04 milligram of active nitrogen, referred to in the preceding paragraph, corresponds to 0.2 milligram of uncombined vitamine base.

Although this figure is simply a rough approximation and may be somewhat too high, it serves to convey an idea as to the quantity of vitamine required for normal nutrition. It is useful in a practical way in work on the isolation of vitamine, in showing the order of magnitude of dosage which must be approached with fractions believed to be pure or nearly pure vitamine. With this figure in mind, it certainly will not be necessary to undertake identification tests or analyses upon fractions which, in daily doses greater than one-fourth milligram, do not protect pigeons from loss in weight on polished rice.

ACT READJUSTING PAY AND ALLOWANCES OF THE COMMISSIONED PERSONNEL OF THE PUBLIC HEALTH SERVICE.

PUBLIC 235 (67TH CONG.). An Act To readjust the pay and allowances of the commissioned and enlisted personnel of the Army, Navy, Marine Corps, Coast Guard, Coast and Geodetic Survey, and Public Health Service.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That, beginning July 1, 1922, for the purpose of computing the annual pay of the commissioned officers of the Regular Army and Marine Corps below the grade of brigadier general, of the Navy below the grade of rear admiral, of the Coast Guard, of the Coast and Geodetic Survey, and of the Public Health Service below the grade of surgeon general, pay periods are prescribed, and the base pay for each is fixed as follows:

The first period, \$1,500; the second period, \$2,000; the third period, \$2,400; the fourth period, \$3,000; the fifth period, \$3,500; and the sixth period, \$4,000.

The pay of the sixth period shall be paid to colonels of the Army, captains of the Navy, and officers of corresponding grade who have completed twenty-six years' service, or whose first appointment in the permanent service was in a grade above that corresponding to captain in the Army, or who were appointed to the Regular Army under the provisions of the first sentence of section 24, Act of June 3, 1916, as amended by the Act of June 4, 1920; to officers of the Staff Corps of the Navy advanced by selection under existing laws to the rank or pay of captain; to lieutenant colonels of the Army, commanders of the Navy, and officers of corresponding grade, and lieutenant commanders of the line and Engineer Corps of the Coast Guard who have completed thirty years' service; and to the Chief of Chaplains of the Army.

The pay of the fifth period shall be paid to colonels of the Army, captains of the Navy, and officers of corresponding grade who are not entitled to the pay of the sixth period; to lieutenant colonels of the Army, commanders of the Navy, and officers of corresponding grade who have completed twenty years' service, or whose first appointment in the permanent service was in a grade above that corresponding to captain in the Army, or who were appointed to the Regular Army under the provisions of the first sentence of said section 24; to officers of the Staff Corps of the Navy advanced by selection under existing laws to the rank or pay of commander; and to majors of the Army, lieutenant commanders of the Navy, and officers of corresponding grade who have completed twenty-three years' service: *Provided*, That lieutenant commanders of the Staff Corps of the Navy who were appointed between the dates of March 4, 1913,

and June 7, 1916, in a grade above that of ensign, shall receive the pay of this pay period after completing twenty years' service.

The pay of the fourth period shall be paid to lieutenant colonels of the Army, commanders of the Navy, and officers of corresponding grade who are not entitled to the pay of the fifth or sixth period; to majors of the Army, lieutenant commanders of the Navy, and officers of corresponding grade who have completed fourteen years' service, or whose first appointment in the permanent service was in a grade above that corresponding to second lieutenant in the Army, or who were appointed to the Regular Army under the provisions of the first sentence of said section 24; to captains of the Army, lieutenants of the Navy, and officers of corresponding grade who have completed seventeen years' service, except those whose promotion is limited by law to this grade and who are not entitled under existing law to the pay and allowances of a higher grade; and to lieutenants of the Staff Corps of the Navy, and lieutenants and lieutenants (junior grade) of the line and Engineer Corps of the Coast Guard whose total commissioned service equals that of lieutenant commanders of the line of the Navy drawing the pay of this period.

The pay of the third period shall be paid to majors of the Army, lieutenant commanders of the Navy, and officers of corresponding grade who are not entitled to the pay of the fourth, fifth, or sixth period; to captains of the Army, lieutenants of the Navy, and officers of corresponding grade who have completed seven years' service, or whose first appointment in the permanent service was in a grade above that corresponding to second lieutenant in the Army, or whose present rank dates from July 1, 1920, or earlier; to first lieutenants of the Army, lieutenants (junior grade) of the Navy, and officers of corresponding grade who have completed ten years' service; and to lieutenants (junior grade) of the line and Engineer Corps of the Coast Guard whose total commissioned service equals that of lieutenants of the line of the Navy drawing the pay of this period.

The pay of the second period shall be paid to captains of the Army, lieutenants of the Navy, and officers of corresponding grade who are not entitled to the pay of the third or fourth period; to first lieutenants of the Army, lieutenants (junior grade) of the Navy, and officers of corresponding grade who have completed three years' service, or whose first appointment in the permanent service was in a grade above that corresponding to second lieutenant in the Army; and to second lieutenants of the Army, ensigns of the Navy, and officers of corresponding grade who have completed five years' service.

The pay of the first period shall be paid to all other officers whose pay is provided for in this section.

During the existence of a state of war, formally recognized by Congress, officers of grades corresponding to those of colonel, lieuten-

ant colonel, major, captain, and first lieutenants of the Army, holding either permanent or temporary commissions as such, shall receive the pay of the sixth, fifth, fourth, third, and second periods, respectively, unless entitled under the foregoing provisions of this section to the pay of a higher period.

Every officer paid under the provisions of this section shall receive an increase of 5 per centum of the base pay of his period for each three years of service up to thirty years: *Provided*, That the base pay plus pay for length of service of no officer below the grade of colonel of the Army, captain of the Navy, or corresponding grade, shall exceed \$5,750. Nothing contained in the first sentence of section 17 or in any other section of this act shall authorize an increase in the pay of officers or warrant officers on the retired list on June 30, 1922.

For officers appointed on and after July 1, 1922, no service shall be counted for purposes of pay except active commissioned service under a Federal appointment and commissioned service in the National Guard when called out by order of the President. For officers in the service on June 30, 1922, there shall be included in the computation all service which is now counted in computing longevity pay, and service as a contract surgeon serving full time; and also 75 per centum of all other periods of time during which they have held commissions as officers of the Organized Militia between January 21, 1903, and July 1, 1916, or of the National Guard, the Naval Militia, or the National Naval Volunteers since June 3, 1916, and service as a contract surgeon serving full time, shall be included in the computation.

The provisions of this Act shall apply equally to those persons serving, not as commissioned officers in the Army, or in the other services mentioned in the title of this Act, but whose pay under existing law is an amount equivalent to that of a commissioned officer of one of the above grades, those receiving the pay of colonel, lieutenant colonel, major, captain, first lieutenant, and second lieutenant, being classified as in the sixth, fifth, fourth, third, second, and first periods, respectively. Pay clerks of the Marine Corps shall receive the pay of second lieutenants of the Army of the same length of service. Contract surgeons serving full time shall have the pay and allowances for subsistence and rental authorized for officers serving in their second pay period. Commissioned warrant officers on the active list with creditable records shall, after six years' commissioned service, receive the pay of the second period, and after twelve years' commissioned service, receive the pay of the third period: *Provided*, That a commissioned warrant officer promoted from the grade of warrant officer shall suffer no reduction of pay by reason of such promotion. Army field clerks and field clerks, Quartermaster Corps,

shall have the allowances for subsistence and rental authorized for officers receiving the pay of the first period.

SEC. 2. That no commissioned officer while on field or sea duty shall receive any increase of his pay or compensation by reason of such duty.

SEC. 3. That when officers of the National Guard or of the reserve forces of any of the services mentioned in the title of this Act are authorized by law to receive Federal pay, those serving in grades corresponding to those of colonel, lieutenant colonel, major, captain, first lieutenant, and second lieutenant of the Army shall receive the pay of the sixth, fifth, fourth, third, second, and first periods, respectively. In computing the increase of pay for each period of three years' service, such officers shall be credited with full time for all periods during which they have held commissions as officers of any of the services mentioned in the title of this Act, or in the Organized Militia prior to July 1, 1916, or in the National Guard, or in the Naval Militia, or in the National Naval Volunteers, or in the Naval Reserve Force or Marine Corps Reserve Force, when confirmed in grade and qualified for all general service, with full time for all periods during which they have performed active duty under reserve commissions, and with one-half time for all other periods during which they have held reserve commissions.

SEC. 4. That the term "dependent" as used in the succeeding sections of this Act shall include at all times and in all places a lawful wife and unmarried children under twenty-one years of age. It shall also include the mother of the officer provided she is in fact dependent on him for her chief support.

SEC. 5. That each commissioned officer on the active list, or on active duty below the grade of brigadier general or its equivalent, in any of the services mentioned in the title of this Act, shall be entitled at all times, in addition to his pay, to a money allowance for subsistence, the value of one allowance to be determined by the President for each fiscal year in accordance with a certificate furnished by the Secretary of Labor showing the comparative retail cost of food in the United States for the previous calendar year as compared with the calendar year 1922. The value of one allowance is hereby fixed at 60 cents per day for the fiscal year 1923, and this value shall be the maximum and shall be used by the President as the standard in fixing the same or lower values for subsequent years. To each officer of any of the said services receiving the base pay of the first period the amount of this allowance shall be equal to one subsistence allowance, to each officer receiving the base pay of the second, third, or sixth period the amount of this allowance shall be equal to two subsistence allowances, and to each officer receiving the base pay of the fourth or fifth period the amount of this allowance shall be equal

to three subsistence allowances: *Provided*, That an officer with no dependents shall receive one subsistence allowance in lieu of the above allowances.

SEC. 6. That each commissioned officer on the active list or on active duty below the grade of brigadier general or its equivalent, in any of the services mentioned in the title of this Act, if public quarters are not available, shall be entitled at all times, in addition to his pay, to a money allowance for rental of quarters, the amount of such allowance to be determined by the rate for one room fixed by the President for each fiscal year in accordance with a certificate furnished by the Secretary of Labor showing the comparative cost of rents in the United States for the preceding calendar year as compared with the calendar year 1922. Such rate for one room is hereby fixed at \$20 per month for the fiscal year 1923, and this rate shall be the maximum and shall be used by the President as the standard in fixing the same or lower rates for subsequent years. To each officer receiving the base pay of the first period the amount of this allowance shall be equal to that for two rooms, to each officer receiving the base pay of the second period the amount of this allowance shall be equal to that for three rooms, to each officer receiving the base pay of the third period the amount of this allowance shall be equal to that for four rooms, to each officer receiving the base pay of the fourth period the amount of this allowance shall be equal to that for five rooms, and to each officer receiving the base pay of the fifth or sixth period the amount of this allowance shall be equal to that for six rooms. The rental allowance shall accrue while the officer is on field or sea duty, temporary duty away from his permanent station, in hospital, on leave of absence or on sick leave, regardless of any shelter that may be furnished him for his personal use, if his dependent or dependents are not occupying public quarters during such period. In lieu of the above allowances an officer with no dependents receiving the base pay of the first or second period shall receive the allowance for two rooms, that such an officer receiving the base pay of the third or fourth period shall receive the allowance for three rooms, and that such an officer receiving the base pay of the fifth or sixth period shall receive the allowance for four rooms, but no rental allowance shall be made to any officer without dependents by reason of his employment on field or sea duty.

SEC. 7. That when the total of base pay, pay for length of service and allowances for subsistence and rental of quarters, authorized in this Act for any officer below the grade of brigadier general or its equivalent, shall exceed \$7,200 a year, the amount of the allowances to which such officer is entitled shall be reduced by the amount of the excess above \$7,200: *Provided*, That this section shall not apply

to the Captain Commandant of the Coast Guard nor to the Director of the Coast and Geodetic Survey:

Sec. 8. That commencing July 1, 1922, the annual base pay of a brigadier general of the Army and of the Marine Corps, rear admiral (lower half) of the Navy, commodore of the Navy, and Surgeon General of the Public Health Service shall be \$6,000; and the annual base pay of a major general of the Army and of the Marine Corps, and rear admiral (upper half) of the Navy shall be \$8,000. Every such officer shall be entitled to the same money allowance for subsistence as is authorized in section 5 of this Act for officers receiving the pay of the sixth period and to the same money allowance for rental of quarters as is authorized in section 6 of this Act for officers receiving the pay of the sixth period: *Provided*, That when the total of base pay, subsistence, and rental allowances exceeds \$7,500 for officers serving in the grade of brigadier general of the Army and of the Marine Corps, rear admiral (lower half) of the Navy, commodore of the Navy, and Surgeon General of the Public Health Service, and \$9,700 for those serving in the grade of major general of the Army and of the Marine Corps, and rear admiral (upper half) of the Navy, the amount of the allowances to which such officer is entitled shall be reduced by the amount of the excess above \$7,500 or \$9,700, respectively. Rear admirals of the Navy serving in higher grades shall be entitled, while so serving, to the pay and allowances of a rear admiral (upper half) and to a personal money allowance per year as follows: When serving in the grade of vice admiral, \$500; when serving in the grade of admiral or as Chief of Naval Operations, \$2,200.

SEC. 9. That commencing July 1, 1922, the monthly base pay of warrant officers and enlisted men of the Army and Marine Corps shall be as follows: Warrant officers of the Army and Marine Corps, \$148; warrant officers, Army Mine Planter Service, master, \$185; first mate, \$141; second mate, \$109; engineer, \$175; assistant engineer, \$120; enlisted men of the first grade, \$126; enlisted men of the second grade, \$84; enlisted men of the third grade, \$72; enlisted men of the fourth grade, \$54; enlisted men of the fifth grade, \$42; enlisted men of the sixth grade, \$30; enlisted men of the seventh grade, \$21; and the pay for specialists' ratings shall be as follows: First class, \$30; second class, \$25; third class, \$20; fourth class, \$15; fifth class, \$6; sixth class, \$3. Existing laws authorizing continuous-service pay for each five years of service are hereby repealed, effective June 30, 1922. Commencing July 1, 1922, warrant officers of the Army and Marine Corps, including warrant officers of the Army Mine Planter Service and enlisted men of the Army and Marine Corps, shall receive, as a permanent addition to their pay, an increase of 5 per centum of their base pay for each four years of service in any of the

services mentioned in the title of this Act not to exceed 25 per centum. On and after July 1, 1922, an enlistment allowance equal to \$50, multiplied by the number of years served in the enlistment period from which he has last been discharged, shall be paid to every honorably discharged enlisted man of the first three grades who reenlists within a period of three months from the date of his discharge, and an enlistment allowance of \$25, multiplied by the number of years served in the enlistment period from which he has last been discharged, shall be paid to every honorably discharged enlisted man of the other grades who reenlists within a period of three months from the date of his discharge. Nothing contained herein shall operate to reduce the pay now being received by any transferred member of the Fleet Marine Corps Reserve. On and after July 1, 1922, retired enlisted men of the Army and Marine Corps shall have their retired pay computed as now authorized by law on the basis of pay provided in this Act.

SEC. 10. That on and after July 1, 1922, the monthly base pay of warrant officers of the Navy and Coast Guard shall be as follows: During the first six years of service—at sea, \$153; on shore, \$135; during the second six years of service—at sea, \$168; on shore, \$147; after twelve years' service—at sea, \$189; on shore, \$168. On and after July 1, 1922, for purposes of pay, enlisted men of the Navy and Coast Guard shall be distributed in seven grades, with monthly base rates of pay as follows: First grade, \$126; second grade, \$84; third grade, \$72; fourth grade, \$60; fifth grade, \$54; sixth grade, \$36; seventh grade, \$21. Chief petty officers under acting appointment shall be included in the first grade at a monthly base pay of \$99.

That the Secretary of the Navy is authorized to fix the pay grade for the various ratings of enlisted men of the Navy; and the Secretary of the Treasury is authorized to fix the pay grade for the various ratings of enlisted men of the Coast Guard. Mates shall receive the pay of enlisted men of the first grade of the Navy. Nothing contained herein shall operate to reduce the pay now being received by any transferred member of the Fleet Naval Reserve. In lieu of all permanent additions to pay now authorized for enlisted men of the Navy and Coast Guard, they shall receive, as a permanent addition to their pay, an increase of 10 per centum on the base pay of their rating upon completion of the first four years of enlisted service, and an additional increase of 5 per centum for each four years' service thereafter, the total not to exceed 25 per centum. All transient additions to pay of enlisted men of the Navy and Coast Guard are hereby repealed, except as provided for in section 21 of this Act.

The rates of pay of the insular force of the Navy shall be one-half the rates of pay prescribed for enlisted men of the Navy in corresponding ratings. Existing laws authorizing a reenlistment gratuity

to enlisted men of the Navy and Coast Guard are hereby repealed, and an enlistment allowance equal to \$50 multiplied by the number of years served in the enlistment period from which he has last been discharged, but not to exceed \$200, shall be paid to every honorably discharged enlisted man of the first three grades who reenlists within a period of three months from the date of his discharge; and an enlistment allowance of \$25 multiplied by the number of years served in the enlistment period from which he has last been discharged, but not to exceed \$100, shall be paid to every honorably discharged enlisted man of the other grades who reenlists within a period of three months from the date of his discharge. On and after July 1, 1922, retired enlisted men of the Navy and Coast Guard shall have their retired pay computed as now authorized by law on the basis of pay provided by this Act.

SEC. 11. That warrant officers of the Army, including those of the Army Mine Planter Service, of the Navy, Marine Corps, and Coast Guard, shall be entitled at all times to the same money allowance for subsistence as is authorized in section 5 of this Act for officers receiving the pay of the first period, and to the same money allowance for rental of quarters as is authorized in section 6 of this Act for officers receiving the pay of the first period. To each enlisted man not furnished quarters or rations in kind there shall be granted, under such regulations as the President may prescribe, an allowance for quarters and subsistence, the value of which shall depend on the conditions under which the duty of the man is being performed, and shall not exceed \$4 per day. These regulations shall be uniform for all the services mentioned in the title of this Act. Subsistence for pilots shall be paid in accordance with existing regulations, and rations for enlisted men may be commuted as now authorized by law.

SEC. 12. That officers of any of the services mentioned in the title of this Act, when traveling under competent orders without troops, shall receive a mileage allowance at the rate of 8 cents per mile, distance to be computed by the shortest usually traveled route and existing laws providing for the issue of transportation requests to officers of the Army traveling under competent orders, and for deduction to be made from mileage accounts when transportation is furnished by the United States, are hereby made applicable to all the services mentioned in the title of this Act, but in cases when orders are given for travel to be performed repeatedly between two or more places in the same vicinity, as determined by the head of the executive department concerned, he may, in his discretion, direct that actual and necessary expenses only be allowed. Actual expenses only shall be paid for travel under orders outside the limits of the United States in North America. Unless otherwise expressly provided by law, no officer of the services mentioned in the title of this

Act shall be allowed or paid any sum in excess of expenses actually incurred for subsistence while traveling on duty away from his designated post of duty, nor any sum for such expenses actually incurred in excess of \$7 per day. The heads of the executive departments concerned are authorized to prescribe per diem rates of allowance, not exceeding \$6, in lieu of subsistence to officers traveling on official business and away from their designated posts of duty.

In lieu of the transportation in kind authorized by section 12 of an Act entitled "An Act to increase the efficiency of the commissioned and enlisted personnel of the Army, Navy, Marine Corps, Coast Guard, Coast and Geodetic Survey, and Public Health Service," approved May 18, 1920, to be furnished by the United States for dependents, the President may authorize the payment in money of amounts equal to such commercial transportation costs when such travel shall have been completed. Dependent children shall be such as are defined in section 4 of this Act.

SEC. 13. That, commencing July 1, 1922, the annual pay of female nurses of the Army and Navy shall be as follows: During the first three years of service, \$840; from the beginning of the fourth year of service until the completion of the sixth year of service, \$1,080; from the beginning of the seventh year of service until the completion of the ninth year of service, \$1,380; from the beginning of the tenth year of service, \$1,560. Superintendents of the Nurse Corps shall receive a money allowance at the rate of \$2,500 a year, assistant superintendents, directors, and assistant directors at the rate of \$1,500 a year, and chief nurses at the rate of \$600 a year, in addition to their pay as nurses. Nurses shall be entitled to the same allowance for subsistence as is authorized in section 5 of this Act for officers receiving the pay of the first period, and to the same allowance for rental of quarters as is authorized in section 6 of this Act for officers receiving the pay of the first period.

SEC. 14. That officers of the National Guard receiving Federal pay, except for armory drill, and reserve officers of any of the services mentioned in the title of this Act while on active duty shall receive the allowances herein prescribed for officers of the regular services in sections 5 and 6 of this Act. Hereafter, in addition to the pay authorized in section 109, Act of June 3, 1916, as amended by the Act of June 4, 1920, field officers and lieutenants of the National Guard commanding organizations less than a brigade, and having administrative functions, shall receive \$240 per year for the faithful performance of the administrative duties connected therewith; and warrant officers of the National Guard shall receive not more than four-thirtieths of the monthly base pay of their grade for satisfactory performance of their appropriate duties, under such regulations as the Secretary of War may prescribe.

On and after July 1, 1922, the armory drill pay for enlisted men of the National Guard of the sixth grade shall be \$1.15, and for those of the seventh grade shall be \$1, in lieu of that authorized in section 110, Act of June 3, 1916, as amended by the Act of June 4, 1920; and the pay of enlisted men of the National Guard of the sixth and seventh grades shall be \$1.15 and \$1 per day, respectively, whenever they are participating in exercises provided for by sections 94, 97, and 99 of the National Defense Act, approved June 3, 1916.

SEC. 15. That existing laws authorizing increase of pay for foreign service and commutation of quarters, heat, and light are hereby repealed, effective July 1, 1922.

SEC. 16. That nothing contained in this Act shall operate to reduce the pay of any officer on the active list below the pay to which he is entitled by reason of his grade and length of service on June 30, 1922, not including additional pay authorized by the Act entitled "An Act to increase the efficiency of the commissioned and enlisted personnel of the Army, Navy, and Marine Corps, Coast Guard, Coast and Geodetic Survey, and Public Health Service," approved May 18, 1920; and nothing contained in this Act shall operate to reduce the total of the pay and allowances which any enlisted man of the Army, Navy, Marine Corps, or Coast Guard is now receiving during his current enlistment and while he holds his present grade or rating.

The provisions of this section shall apply in like manner to each person not commissioned whose pay is based by law on that of a commissioned officer.

SEC. 17. That on and after July 1, 1922, retired officers and warrant officers shall have their retired pay, or equivalent pay, computed as now authorized by law on the basis of pay provided in this Act: *Provided*, That nothing contained in this Act shall operate to reduce the present pay of officers, warrant officers, and enlisted men now on the retired list or officers or warrant officers in an equivalent status of any of the services mentioned in the title of this Act. Active duty performed after June 30, 1922, by an officer on the retired list or its equivalent shall not entitle such officer to promotion: *Provided*, That officers and former officers of the Philippine Scouts who were placed on the retired list prior to June 4, 1920, shall be entitled to promotion on the retired list for active duty heretofore performed subsequent to retirement, in accordance with the provisions of section 127a of the Act of June 3, 1916, as amended by the Act of June 4, 1920, and to the same pay and benefits received by other officers of the Army of like grade and length of service, on the retired list. Retired officers of the Army, Navy, Marine Corps, Coast Guard, and Coast and Geodetic Survey below the grade of brigadier general or commodore and retired warrant officers and enlisted men of those services, shall, when on active duty, receive full pay and allowances.

SEC. 18. That under such regulations as the President may prescribe, enlisted men of the Army, Navy, Marine Corps, and Coast

Guard may receive additional compensation not less than \$1 or more than \$5 per month, for special qualification in the use of the arm or arms which they may be required to use. All laws and parts of laws authorizing extra pay for qualification in the use of arms or instruments, or for holding rated positions, except as otherwise specifically provided herein, are hereby repealed, to take effect July 1, 1922.

SEC. 19. That cadets at the Military Academy and cadets and cadet engineers of the Coast Guard shall receive the same pay and allowances as are now or may hereafter be provided by law for midshipmen in the Navy.

SEC. 20. That all officers, warrant officers, and enlisted men of all branches of the Army, Navy, Marine Corps, and Coast Guard, when detailed to duty involving flying, shall receive the same increase of their pay and the same allowance for traveling expenses as are now authorized for the performance of like duties in the Army. Exclusive of the Army Air Service, and student aviators and qualified aircraft pilots of the Navy, Marine Corps, and Coast Guard, the number of officers of any of the services mentioned in the title of this Act detailed to duty involving flying shall not at any one time exceed one-half of 1 per centum of the total authorized commissioned strength of such service. Regulations in execution of the provisions of this section shall be made by the President and shall be uniform for all the services concerned.

SEC. 21. That nothing in this Act shall operate to change in any way existing laws, or regulations made in pursuance of law, governing pay and allowances of the General of the Armies, the enlisted men of the Philippine Scouts, Marine Band, Naval Academy Band, Indian scouts, or flying cadets; nor the allowances in kind for rations, quarters, heat, and light for enlisted men; nor allowances in kind for quarters, heat, and light for officers and warrant officers; nor allowances for private mounts for officers; nor transportation in kind for officers and warrant officers and enlisted men and their dependents; nor transportation and packing allowances for baggage or household effects of officers and warrant officers and enlisted men; nor additional pay for aides; nor extra pay to enlisted men serving as stenographic reporters, or employed as cooks or messmen, or mail clerks, or assistant mail clerks, or engaged in submarine diving or service on submarines; nor money allowances granted to enlisted men on account of awards of medals or decorations expressly authorized by Congress.

SEC. 22. That the provisions of this Act shall be effective beginning July 1, 1922, and all laws and parts of laws which are inconsistent herewith or in conflict with the provisions hereof are hereby repealed as of that date.

Approved, June 10, 1922.

DIVISION OF VENEREAL DISEASES, JANUARY, FEBRUARY, AND MARCH, 1922.

During the months of January, February, and March, 1922, 71,960 cases of venereal diseases were reported to the State boards of health, and 36,218 new cases were admitted to the venereal disease clinics.

Venereal disease reports for January, February, and March, 1922—Number of cases reported by the State boards of health, number of admissions to the venereal disease clinics operating under joint control of the United States Public Health Service and the State boards of health, and number of treatments of arsphenamine administered.

State.	Cases reported.				Admissions to clinics.				Arsphenamine treatments administered.
	Total cases.	Syphilis.	Gonorrhea.	Chancroid.	Total admissions.	Syphilis.	Gonorrhea.	Chancroid.	
Alabama.....	414	183	224	7	2,070	1,223	787	60	7,904
Arizona.....	33	13	20						
Arkansas.....	2,403	1,262	1,104	37	722	471	240	11	2,839
California.....	2,300	1,196	1,104		1,204	687	496	21	4,128
Colorado.....	767	250	492	25	371	196	166	9	1,463
Connecticut.....	479	306	173		265	114	138	13	1,166
Delaware.....	275	154	118	3	65	26	31	8	175
District of Columbia.....					108	98	10		304
Florida.....	996	473	462	61	1,076	833	190	53	3,522
Georgia.....	2,168	1,087	999	82	807	450	272	85	2,703
Idaho.....	73	25	47	1					
Illinois.....	3,062	1,546	1,449	67	2,577	1,104	1,371	102	9,233
Indiana.....	1,132	594	525	13	1,208	552	600	56	6,227
Iowa.....	657	241	405	11	399	189	206	4	2,282
Kansas.....	624	304	315	5	510	318	192		2,287
Kentucky.....	7,185	4,859	2,243	73	967	571	382	14	4,000
Louisiana.....	1,842	945	748	149	584	67	428	89	3,549
Maine.....	354	151	202	1	672	652	20		408
Maryland.....	973	423	525	25	597	202	373	22	1,457
Massachusetts.....	1,665	538	1,127		1,940	1,212	725	3	11,794
Michigan.....	3,806	1,762	2,016	28	1,558	842	700	16	4,279
Minnesota.....	2,497	1,078	1,386	33	258	99	157	2	1,826
Mississippi.....	617	293	266	58	594	300	236	58	1,295
Missouri.....	3,242	1,614	1,415	213	2,496	1,316	1,002	178	5,111
Montana.....	210	91	119		20	4	16		110
Nebraska.....	1,086	365	674	47	323	143	160	20	1,633
Nevada ¹									
New Hampshire.....	134	58	76		48	22	26		440
New Jersey.....	1,265	716	539	10	956	490	463	3	2,842
New Mexico.....	96	48	47	1	52	30	22		114
New York.....	3,300	2,463	838	9	1,193	706	470	17	7,705
North Carolina.....	2,154	1,130	965	59	482	326	127	29	2,033
North Dakota.....	176	63	111	2	20	10	10		132
Ohio.....	1,961	1,193	741	27	3,150	1,674	1,349	127	8,777
Oklahoma.....	373	207	154	12	224	147	66	11	604
Oregon.....	684	277	390	17	185	111	73	1	219
Pennsylvania.....	1,755	916	814	25	1,779	936	818	25	6,754
Rhode Island.....	2,807	1,939	865	3	189	116	71	2	1,679
South Carolina.....	1,631	734	779	118	1,305	570	620	115	5,236
South Dakota.....	153	60	89	4	14	7	7		65
Tennessee.....	1,784	974	717	93	1,462	870	478	114	4,561
Texas.....	8,644	4,743	3,494	407	1,764	821	734	209	4,111
Utah.....	159	43	113	3	105	41	61	3	219
Vermont.....	146	73	73		67	58	9		392
Virginia.....	1,210	660	513	37	1,086	636	416	34	4,092
Washington.....					272	149	121	2	1,195
West Virginia.....	2,247	1,180	980	87	100	73	27		755
Wisconsin.....	2,339	1,280	1,056	3	335	145	190		709
Wyoming.....	82	15	64	3	39	16	22	1	92
Total.....	71,960	38,535	31,566	1,839	36,218	19,623	15,078	1,517	132,426

¹ No reports received.

EXHIBIT SHOWING ADVANCES IN SANITARY SCIENCE.

The National Committee on Exhibits Showing Advances in Sanitary Science has recently been formed in Washington, D. C., for the purpose of collecting and preparing material for a great popular public health exhibit in the Capital. The members of the committee include—

Surg. Gen. H. S. Cumming, United States Public Health Service, chairman.

Dr. D. B. Armstrong, National Health Council.

Miss Mabel T. Boardman, American Red Cross.

Surg. Gen. M. W. Ireland, United States Army Medical Corps.

Dr. Victor C. Vaughan, National Research Council.

Dr. C. D. Walcott, Smithsonian Institution.

James A. Tobey, National Health Council, secretary.

Space for the proposed exhibit has been placed at the disposal of the Committee by the Smithsonian Institution. This Institution is visited by more than half a million persons annually. Plans are under way to install exhibit material secured from official and voluntary health agencies. The secretary's office is in the national headquarters of the American Red Cross at Washington, D. C.

DEATHS DURING WEEK ENDED JUNE 10, 1922.

Summary of information received by telegraph from industrial insurance companies for week ended June 10, 1922, and corresponding week, 1921. (From the Weekly Health Index, June 13, 1922, issued by the Bureau of the Census, Department of Commerce.)

	Week ended June 10, 1922.	Corresponding week, 1921.
Policies in force.....	50, 014, 236	47, 093, 473
Number of death claims.....	9, 058	8, 687
Death claims per 1,000 policies in force, annual rate.....	9.4	9.6

Deaths from all causes in certain large cities of the United States during the week ended June 10, 1922, infant mortality, annual death rate, and comparison with corresponding week of 1921. (From the Weekly Health Index, June 13, 1922, issued by the Bureau of the Census, Department of Commerce.)

City.	Estimated population July 1, 1922.	Week ended June 10, 1922.		Annual death rate per 1,000, corresponding week, 1921.	Deaths under 1 year.		Infant mortality rate, week ended June 10, 1922. ³
		Total deaths.	Death rate. ¹		Week ended June 10, 1922.	Corresponding week, 1921.	
Total.....	27,740,821	6,069	11.4	10.7	794	733	.....
Akron, Ohio.....	208,435	23	5.8	6.6	6	7	64
Albany, N. Y.....	116,223	34	15.3	12.7	3	3	67
Atlanta, Ga.....	220,047	61	14.5	14.3	11	6	.....
Baltimore, Md.....	762,222	207	14.2	12.2	26	27	73
Birmingham, Ala.....	191,017	42	11.5	16.0	9	5	.....
Boston, Mass.....	764,017	164	11.2	13.4	25	32	67
Bridgeport, Conn.....	143,556	27	9.8	8.0	4	3	50
Buffalo, N. Y.....	528,163	124	12.2	12.3	15	18	59
Cambridge, Mass.....	110,944	25	11.7	9.4	3	2	55
Camden, N. J.....	121,915	30	12.8	10.9	1	4	15
Chicago, Ill.....	2,833,288	560	10.3	9.6	95	78	.....
Cincinnati, Ohio.....	404,865	94	12.1	12.7	7	14	47
Cleveland, Ohio.....	854,003	131	8.0	8.4	17	18	44
Columbus, Ohio.....	253,455	57	11.7	11.9	7	5	74
Dallas, Texas.....	171,974	40	12.1	12.3	3	5	.....
Dayton, Ohio.....	161,824	26	8.4	14.2	1	4	17
Denver, Colo.....	267,591	77	15.0	11.9	6	8	.....
Detroit, Mich.....	993,678	176	9.2	8.7	36	33	69
Fall River, Mass.....	120,790	25	10.8	13.0	4	3	56
Fort Worth, Tex.....	114,717	17	7.7	.....	2	.....	.....
Grand Rapids, Mich.....	143,572	33	12.0	8.1	6	3	100
Houston, Tex.....	150,087	20	6.9	10.5	1	4	.....
Indianapolis, Ind.....	333,257	55	8.6	11.0	3	6	23
Jersey City, N. J.....	305,911	52	8.9	11.2	8	10	51
Kansas City, Mo.....	343,988	74	11.2	10.9	10	11	.....
Los Angeles, Calif.....	634,866	165	13.6	13.0	14	10	58
Louisville, Ky.....	226,577	51	11.2	14.6	5	3	54
Lowell, Mass.....	114,423	25	11.4	8.3	5	2	84
Memphis, Tenn.....	167,862	57	17.7	12.0	2	5	.....
Milwaukee, Wis.....	476,603	90	9.8	7.6	16	11	78
Minneapolis, Minn.....	400,970	87	11.3	9.8	4	14	22
Nashville, Tenn.....	122,832	41	17.4	16.2	5	1	.....
New Bedford, Mass.....	127,542	16	6.5	10.8	0	7	0
New Haven, Conn.....	169,987	33	10.1	10.6	10	5	122
New Orleans, La.....	399,616	113	14.7	13.7	12	16	.....
New York, N. Y.....	5,839,746	1,284	11.5	9.7	179	139	69
Newark, N. J.....	431,792	95	11.5	10.4	14	18	62
Norfolk, Va.....	124,915	21	8.8	11.6	3	3	53
Oakland, Calif.....	255,279	48	10.7	10.8	5	4	63
Omaha, Neb.....	200,739	53	13.8	13.5	3	9	32
Paterson, N. J.....	138,521	26	9.8	12.9	2	4	31
Philadelphia, Pa.....	1,894,500	412	11.3	10.3	50	50	56
Pittsburgh, Pa.....	607,802	160	13.7	13.3	25	23	80
Portland, Ore.....	269,240	55	10.7	10.8	10	1	99
Providence, R. I.....	241,011	50	10.8	11.5	6	1	47
Richmond, Va.....	178,365	52	15.2	13.7	3	5	37
Rochester, N. Y.....	311,548	79	13.2	8.4	13	4	100
St. Louis, Mo.....	795,008	196	12.9	11.0	16	10	.....
St. Paul, Minn.....	239,836	58	12.6	9.2	5	3	47
Salt Lake City, Utah.....	123,918	36	15.1	15.0	2	4	30
San Francisco, Calif.....	529,792	146	14.4	13.2	7	5	40
Seattle, Wash.....	315,312	47	7.8	8.4	4	6	34
Spokane, Wash.....	104,445	24	12.0	8.0	2	7	43
Springfield, Mass.....	140,052	21	7.8	12.3	6	8	89
Syracuse, N. Y.....	181,012	45	13.0	12.6	4	6	48
Toledo, Ohio.....	260,717	68	13.6	11.5	13	4	127
Trenton, N. J.....	125,075	40	16.7	7.7	9	9	138
Washington, D. C.....	437,571	106	12.6	12.6	15	9	86
Wilmington, Del.....	115,568	24	10.8	10.1	7	0	136
Worcester, Mass.....	188,449	28	7.7	13.2	4	8	43
Yonkers, N. Y.....	105,422	20	9.9	7.1	1	1	21
Youngstown, Ohio.....	144,970	23	8.3	8.6	4	2	53

¹ Annual rate per 1,000 population.

² Deaths under 1 year per 1,000 births—an annual rate based on deaths under 1 year for the week and estimated births for 1921. Cities left blank are not in the registration area for births.

³ Enumerated population Jan. 1, 1920.

PREVALENCE OF DISEASE.

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring.

UNITED STATES.

CURRENT STATE SUMMARIES.

Telegraphic Reports for Week Ended June 17, 1922.

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers.

ALABAMA.		Cases.	COLORADO.	
			(Exclusive of Denver.)	Cases.
Diphtheria.....		9	Chicken pox.....	9
Hookworm disease.....		101	Diphtheria.....	13
Influenza.....		7	Influenza.....	7
Malaria.....		19	Measles.....	3
Measles.....		16	Mumps.....	1
Pellagra.....		8	Pneumonia.....	1
Polioomyelitis.....		1	Rocky Mountain spotted or tick fever.....	1
Scarlet fever.....		8	Scarlet fever.....	17
Smallpox.....		3	Smallpox.....	5
Tuberculosis.....		12	Typhoid fever.....	1
Typhoid fever.....		25		
Whooping cough.....		10		
ARKANSAS.			CONNECTICUT.	
Chicken pox.....		1	Chicken pox.....	63
Diphtheria.....		1	Conjunctivitis (infectious).....	1
Hookworm disease.....		2	Diphtheria.....	35
Influenza.....		6	German measles.....	4
Malaria.....		77	Influenza.....	1
Measles.....		5	Malaria.....	1
Pellagra.....		18	Measles:	
Smallpox.....		6	Branford.....	28
Tuberculosis.....		20	Bridgeport.....	12
Typhoid fever.....		6	East Haddam.....	11
Whooping cough.....		3	Greenwich.....	9
CALIFORNIA.			Hamden.....	18
Cerebrospinal meningitis:			Hartford.....	27
Los Angeles.....		1	New Haven.....	111
Merced County.....		1	Stamford.....	11
San Francisco.....		1	Stratford.....	8
Diphtheria.....		139	Suffield.....	18
Influenza.....		13	West Haven.....	41
Lethargic encephalitis—Los Angeles.....		2	Scattering.....	62
Measles.....		11	Mumps.....	14
Polioomyelitis—Los Angeles.....		2	Paratyphoid fever.....	3
Scarlet fever.....		77	Pneumonia (lobar).....	11
Smallpox:			Scarlet fever.....	31
Livermore.....		37	Septic sore throat.....	1
Scattering.....		24	Smallpox.....	2
Typhoid fever.....		18	Tuberculosis (all forms).....	34
			Typhoid fever.....	6
			Whooping cough.....	24

DELAWARE.	Cases.
Chicken pox.....	2
Malaria.....	2
Measles.....	5
Mumps.....	1
Scarlet fever:	
Wilmington.....	9
Scattering.....	3
Tuberculosis.....	2
Typhoid fever.....	1

FLORIDA.	
Diphtheria.....	6
Influenza.....	11
Malaria.....	20
Pneumonia.....	1
Scarlet fever.....	1
Smallpox.....	3
Trachoma.....	1
Typhoid fever.....	8

GEORGIA.	
Diphtheria.....	6
Dysentery (bacillary).....	13
Hookworm disease.....	16
Influenza.....	2
Malaria.....	30
Measles.....	2
Mumps.....	2
Paratyphoid fever.....	1
Pellagra.....	1
Pneumonia.....	2
Scarlet fever.....	3
Septic sore throat.....	1
Smallpox.....	15
Tuberculosis (all forms).....	8
Typhoid fever.....	41
Whooping cough.....	23

ILLINOIS.	
Cerebrospinal meningitis:	
Brookfield.....	1
Chicago.....	1
Ottawa.....	1
Saline County—Brushy Township.....	1
Diphtheria:	
Chicago.....	131
Scattering.....	62
Influenza.....	7
Lethargic encephalitis:	
Chicago.....	1
Jerseyville.....	1
Pneumonia.....	138
Scarlet fever:	
Chicago.....	71
Scattering.....	32
Smallpox.....	23
Typhoid fever.....	24
Whooping cough.....	229

INDIANA.	
Cerebrospinal meningitis:	
Grant County.....	1
St. Joseph County.....	1
Diphtheria.....	18
Poliomyelitis—Jennings County.....	1

INDIANA—continued.	Cases.
Rabies in animals:	
Boone County.....	1
Jennings County.....	1
Marion County.....	1
Scarlet fever.....	9
Smallpox.....	19
Typhoid fever.....	8

IOWA.	
Diphtheria.....	15
Scarlet fever.....	25
Smallpox.....	21

KANSAS.	
Chicken pox.....	41
Diphtheria.....	28
Malaria.....	3
Measles.....	8
Mumps.....	8
Pneumonia.....	7
Scarlet fever.....	26
Septic sore throat.....	1
Smallpox.....	10
Tuberculosis.....	70
Typhoid fever.....	4
Whooping cough.....	48

LOUISIANA.	
Diphtheria.....	9
Dysentery:	
Rhinehart refugee camp.....	24
Place not stated.....	1
Malaria:	
Rhinehart refugee camp.....	37
Scattering.....	27
Poliomyelitis.....	2
Scarlet fever.....	4
Smallpox.....	4
Typhoid fever.....	20
Whooping cough.....	11

MARYLAND. ¹	
Cerebrospinal meningitis.....	1
Chicken pox.....	52
Diphtheria.....	18
Dysentery.....	4
German measles.....	4
Influenza.....	1
Malaria.....	1
Measles.....	218
Mumps.....	114
Ophthalmia neonatorum.....	5
Pneumonia (all forms).....	27
Scarlet fever.....	12
Septic sore throat.....	1
Tuberculosis.....	65
Typhoid fever.....	10
Vincent's angina.....	3
Whooping cough.....	31

MASSACHUSETTS.	
Cerebrospinal meningitis.....	3
Chicken pox.....	75
Conjunctivitis (suppurative).....	4

¹ Week ended Friday.

MASSACHUSETTS—continued.

	Cases.
Diphtheria.....	86
German measles.....	11
Lethargic encephalitis.....	1
Malaria.....	1
Measles.....	708
Mumps.....	91
Ophthalmia neonatorum.....	17
Pneumonia (lobar).....	28
Scarlet fever.....	87
Trachoma.....	1
Trichinosis.....	1
Tuberculosis (all forms).....	152
Typhoid fever.....	8
Whooping cough.....	71

MINNESOTA.

Cerebrospinal meningitis.....	1
Chicken pox.....	7
Diphtheria.....	42
Measles.....	144
Pneumonia.....	3
Scarlet fever.....	79
Smallpox.....	37
Tuberculosis.....	143
Typhoid fever.....	1

MISSISSIPPI.

Diphtheria.....	6
Polioomyelitis.....	1
Scarlet fever.....	3
Smallpox.....	2
Typhoid fever.....	25

MISSOURI.

Chicken pox.....	10
Diphtheria.....	35
Epidemic sore throat.....	2
Measles.....	42
Mumps.....	6
Pneumonia.....	8
Scarlet fever.....	17
Smallpox.....	1
Tuberculosis.....	67
Typhoid fever.....	5
Whooping cough.....	10

MONTANA.

Diphtheria.....	2
Rocky Mountain spotted or tick fever:	
Baker.....	1
Billings.....	1
Billings (rural).....	1
Melstone.....	1
Pompeys Pillar.....	1
Scarlet fever.....	6
Smallpox.....	4
Typhoid fever.....	1

NEBRASKA.

Chicken pox.....	31
Diphtheria.....	11
Measles:	
Lincoln.....	23
Omaha.....	13
Scattering.....	5
Mumps.....	15
Polioomyelitis—McCook.....	1
Scarlet fever.....	10

1 Deaths.

NEBRASKA—continued.

	Cases.
Smallpox.....	2
Tuberculosis.....	3
Whooping cough.....	2

NEW JERSEY.

Cerebrospinal meningitis.....	2
Chicken pox.....	101
Diphtheria.....	75
Influenza.....	37
Malaria.....	2
Measles.....	774
Pneumonia.....	41
Scarlet fever.....	115
Typhoid fever.....	12
Whooping cough.....	126

NEW MEXICO.

Conjunctivitis.....	1
Diphtheria.....	26
Malaria.....	2
Mumps.....	2
Pneumonia.....	1
Scarlet fever.....	12
Tuberculosis.....	18
Typhoid fever.....	8
Whooping cough.....	4

NEW YORK.

(Exclusive of New York City.)

Cerebrospinal meningitis.....	4
Diphtheria.....	100
Influenza.....	15
Lethargic encephalitis.....	3
Measles.....	808
Pneumonia.....	112
Scarlet fever.....	128
Smallpox.....	6
Typhoid fever.....	12
Whooping cough.....	144

NORTH CAROLINA.

Chicken pox.....	25
Diphtheria.....	27
Measles.....	40
Polioomyelitis.....	2
Scarlet fever.....	21
Smallpox.....	38
Typhoid fever.....	74
Whooping cough.....	161

OREGON.

Chicken pox.....	13
Diphtheria.....	11
Influenza.....	3
Measles.....	1
Mumps.....	12
Pneumonia.....	15
Scarlet fever.....	8
Septic sore throat.....	2
Smallpox.....	15
Tuberculosis.....	4
Typhoid fever.....	1
Whooping cough.....	3

SOUTH DAKOTA.

Chicken pox.....	4
Diphtheria.....	5
Mumps.....	1
Polioomyelitis.....	1

SOUTH DAKOTA—continued.		WEST VIRGINIA—continued.	
	Cases.		Cases.
Scarlet fever.....	7	Smallpox.....	1
Smallpox.....	15	Tuberculosis.....	8
Tuberculosis.....	6		
Typhoid fever.....	1	WISCONSIN.	
Whooping cough.....	3	Milwaukee:	
		Chicken pox.....	53
TEXAS.		Diphtheria.....	11
Diphtheria.....	15	German measles.....	2
Measles.....	22	Measles.....	48
Pneumonia.....	2	Pneumonia.....	2
Poliomyelitis.....	1	Scarlet fever.....	5
Scarlet fever.....	6	Smallpox.....	4
Smallpox.....	8	Tuberculosis.....	23
Typhoid fever.....	13	Whooping cough.....	71
		Scattering:	
VERMONT.		Chicken pox.....	72
Chicken pox.....	21	Diphtheria.....	19
Diphtheria.....	1	German measles.....	20
Measles.....	12	Influenza.....	8
Mumps.....	6	Measles.....	29
Scarlet fever.....	9	Pneumonia.....	4
Typhoid fever.....	1	Scarlet fever.....	51
Whooping cough.....	10	Smallpox.....	33
		Tuberculosis.....	48
WASHINGTON.		Typhoid fever.....	10
Chicken pox.....	34	Whooping cough.....	54
Diphtheria.....	12		
Measles.....	14	WYOMING.	
Mumps.....	16	Mumps.....	1
Scarlet fever.....	7	Rocky Mountain spotted or tick fever:	
Smallpox.....	6	Big Horn County.....	1
Tuberculosis.....	19	Natrona County.....	1
Typhoid fever.....	6	Weston County.....	2
Whooping cough.....	26	Scarlet fever.....	1
		Septic sore throat.....	1
WEST VIRGINIA.		Smallpox.....	1
Diphtheria.....	14	Tuberculosis.....	4
Measles:		Typhoid fever.....	1
Moundsville.....	10		
Scattering.....	14		

Delayed Reports for Week Ended June 10, 1922.

CALIFORNIA.		KENTUCKY.	
	Cases.		Cases.
Botulism—San Luis Obispo County.....	1	Chicken pox.....	4
Cerebrospinal meningitis—San Francisco.....	1	Diphtheria.....	7
Diphtheria.....	112	German measles.....	3
Influenza.....	9	Measles:	
Lethargic encephalitis:		Grant County.....	13
San Francisco.....	1	Scott County.....	27
Santa Clara County.....	1	Scattering.....	30
Measles.....	36	Pneumonia.....	3
Scarlet fever.....	69	Scarlet fever.....	2
Smallpox:		Septic sore throat.....	1
San Jose.....	10	Smallpox.....	1
Scattering.....	27	Tonsillitis.....	2
Typhoid fever.....	16	Tuberculosis:	
		Jefferson County.....	29
DISTRICT OF COLUMBIA.		Scattering.....	5
Chicken pox.....	27	Typhoid fever.....	1
Diphtheria.....	3	Whooping cough.....	4
Measles.....	47		
Scarlet fever.....	2	MAINE.	
Tuberculosis.....	24	Chicken pox.....	18
Typhoid fever.....	11	Diphtheria.....	8
Whooping cough.....	16	Lethargic encephalitis.....	1
		Measles.....	3

MAINE—continued.		WYOMING—continued.	
	Cases.		Cases.
Pneumonia.....	2	Rocky Mountain spotted or tick fever:	
Scarlet fever.....	20	Hot Springs County.....	1
Tuberculosis.....	3	Natrona County.....	1
Typhoid fever.....	2	Niobrara County.....	1
Whooping cough.....	98	Park County.....	8
WYOMING.		Scabies.....	1
Chicken pox.....	3	Scarlet fever.....	2
Diphtheria.....	2	Smallpox.....	5
Pneumonia.....	5	Tuberculosis.....	5
		Whooping cough.....	1

SUMMARY OF CASES REPORTED MONTHLY BY STATES.

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week:

State.	Cerebrospinal meningitis.	Diphtheria.	Influenza.	Malaria.	Measles.	Pellagra.	Polio-myelitis.	Scarlet fever.	Smallpox.	Typhoid fever.
<i>May, 1922.</i>										
Connecticut.....	9	152	47	2	1,652	1	3	270	54	11
District of Columbia.....		63	1			1		25	10	39
Louisiana.....	2	38	107	107	80	20	3	16	108	65
Michigan.....		501	22		2,913		1	562	129	84
New York.....	33	1,873	294		13,400		15	2,451	20	140
Vermont.....	1	21			174		1	109	1	1

CITY REPORTS FOR WEEK ENDED JUNE 3, 1922.

CEREBROSPINAL MENINGITIS.

The column headed "Median for previous years" gives the median number of cases reported during the corresponding weeks of the years 1915 to 1921, inclusive. In instances in which data for the full seven years are incomplete, the median is that for the number of years for which information is available.

City.	Median for previous years.	Week ended June 3, 1922.		City.	Median for previous years.	Week ended June 3, 1922.	
		Cases.	Deaths.			Cases.	Deaths.
Alabama:				New York—Continued.			
Birmingham.....	0		1	Port Chester.....	0	1	1
California:				Syracuse.....	0		1
Los Angeles.....	0	2		Ohio:			
San Francisco.....	0	1		Cambridge.....		1	1
Georgia:				Lancaster.....	0		1
Atlanta.....	0		2	Oregon:			
Massachusetts:				Portland.....	0		1
Boston.....	2	1		Pennsylvania:			
Lynn.....	0	1		Bradford.....	0	1	
Michigan:				Texas:			
Detroit.....	0	2		El Paso.....	0		2
Muskegon.....	0	1		Houston.....	0	1	
New Jersey:				West Virginia:			
Perth Amboy.....	0		1	Charleston.....	0		2
New York:				Wisconsin:			
New York.....	7	4	4	Milwaukee.....	1	1	

DIPHTHERIA.

See p. 1548; also Telegraphic weekly reports from States, p. 1538, and Monthly summaries by States, above.

CITY REPORTS FOR WEEK ENDED JUNE 3, 1922—Continued.

INFLUENZA.

City.	Cases.		Deaths, week ended June 3, 1922.	City.	Cases.		Deaths, week ended June 3, 1922.
	Week ended June 4, 1921.	Week ended June 3, 1922.			Week ended June 4, 1921.	Week ended June 3, 1922.	
California:				Michigan:			
Los Angeles.....		1		Detroit.....	1		
Oakland.....	1			Missouri:			
San Francisco.....	2	1		Kansas City.....	1		
Colorado:				New Jersey:			
Denver.....			2	Harrison.....	1		
Connecticut:				Newark.....		3	
New Haven.....			1	Plainfield.....			1
District of Columbia:				New York:			
Washington.....	2			Albany.....	1		
Florida:				New York.....	11	9	2
Tampa.....			1	North Carolina:			
Georgia:				Charlotte.....			1
Brunswick.....	3			Ohio:			
Illinois:				Cambridge.....			1
Chicago.....	6	1	1	Cincinnati.....			1
Springfield.....		1		Cleveland.....			1
Louisiana:				Norwood.....		1	1
New Orleans.....		2		Oregon:			
Maryland:				Portland.....			1
Baltimore.....	2			Pennsylvania:			
Cumberland.....	1			Philadelphia.....	2	1	2
Massachusetts:				Texas:			
Boston.....	1	1	1	Dallas.....			1
Cambridge.....	1			Virginia:			
Leominster.....		1		Richmond.....			1
Saugus.....	1						
Winthrop.....	1						

LETHARGIC ENCEPHALITIS.

City.	Cases.	Death.	City.	Cases.	Death.
Texas:					
Galveston.....		1			

MALARIA.

Alabama:			Illinois:		
Mobile.....		1	Chicago.....	2	
Arkansas:			Louisiana:		
Little Rock.....	4		New Orleans.....	2	
Florida:			New York:		
Tampa.....	6		New York.....	1	
Georgia:			North Carolina:		
Atlanta.....	1		Salisbury.....		1
Brunswick.....		1	Winston-Salem.....	1	
Savannah.....		1	Texas:		
Valdosta.....	1		Dallas.....	1	
			Houston.....		1

MEASLES.

See p. 1548; also Telegraphic weekly reports from States, p. 1538, and Monthly summaries by States, p. 1542.

PELLAGRA.

City.	Cases.	Deaths.	City.	Cases.	Deaths.
Alabama:			Kentucky:		
Birmingham.....	1	1	Owensboro.....	1	
Mobile.....		1	South Carolina:		
Georgia:			Charleston.....		1
Savannah.....		1	Virginia:		
			Portsmouth.....		1

CITY REPORTS FOR WEEK ENDED JUNE 3, 1922—Continued.

PNEUMONIA (ALL FORMS).

City.	Cases.	Deaths.	City.	Cases.	Deaths.
Alabama:			Massachusetts—Continued.		
Birmingham.....		5	Haverhill.....		2
Mobile.....		1	Holyoke.....		1
Montgomery.....		1	Lawrence.....	1	
Arkansas:			Leominster.....	1	
Fort Smith.....		1	Lovell.....		1
California:			Lynn.....	2	
Los Angeles.....	17	10	Medford.....		1
Oakland.....	5	4	Methuen.....		1
Sacramento.....		4	New Bedford.....		4
San Diego.....		2	Northampton.....	1	
San Francisco.....	7	4	Somerville.....		1
Colorado:			Springfield.....	1	
Denver.....		6	Waltham.....	1	
Pueblo.....		1	Watertown.....		1
Connecticut:			Webster.....		1
Bridgeport.....	1		Worcester.....		3
Hartford.....	1		Michigan:		
New Haven.....		5	Ann Arbor.....		3
New London.....	2		Battle Creek.....	1	
Waterbury.....	2		Detroit.....	37	22
Delaware:			Flint.....		3
Wilmington.....		2	Grand Rapids.....		1
District of Columbia:			Highland Park.....		1
Washington.....		3	Jackson.....	1	
Georgia:			Kalamazoo.....		1
Atlanta.....		2	Muskegon.....		1
Savannah.....		4	Pontiac.....		1
Illinois:			Port Huron.....		1
Aurora.....		1	Minnesota:		
Chicago.....	104	38	Duluth.....	3	1
Danville.....	4	1	Faribault.....		1
East St. Louis.....	1		Minneapolis.....		6
Freeport.....	2	1	St. Paul.....		8
Oak Park.....	3		Winona.....		2
Peoria.....		1	Missouri:		
Quincy.....		1	Kansas City.....		9
Springfield.....		2	St. Joseph.....		3
Indiana:			Montana:		
Anderson.....		1	Great Falls.....		1
East Chicago.....		2	Nebraska:		
Fort Wayne.....		4	Omaha.....		6
Gary.....		3	Nevada:		
Hammond.....		1	Reno.....		1
Indianapolis.....		7	New Hampshire:		
Mishawaka.....		1	Concord.....		2
Muncie.....		2	Dover.....		1
South Bend.....		1	New Jersey:		
Iowa:			Asbury Park.....	1	
Burlington.....		2	Bloomfield.....	1	
Mason City.....	2		East Orange.....	4	
Kansas:			Elizabeth.....		5
Hutchinson.....	1		Englewood.....		1
Kansas City.....	1		Harrison.....	3	
Topeka.....	1		Hoboken.....		7
Wichita.....		1	Jersey City.....	5	
Kentucky:			Montclair.....	2	
Covington.....		1	Morristown.....		1
Lexington.....		1	Newark.....	37	6
Louisville.....	7	3	Orange.....	2	
Louisiana:			Passaic.....		1
New Orleans.....		13	Paterson.....	4	
Maine:			Plainfield.....	2	1
Biddeford.....		1	Trenton.....	3	2
Lewiston.....		2	New York:		
Portland.....		1	Albany.....	6	
Maryland:			Auburn.....		1
Baltimore.....	19	10	Buffalo.....		10
Cumberland.....	1		Elmira.....	3	
Massachusetts:			Fulton.....		1
Amesbury.....		2	Hornell.....		1
Beverly.....	1		Hudson.....	1	
Boston.....		16	Ithaca.....	3	
Cambridge.....	5	1	Lackawanna.....		1
Chelsea.....	3		Lockport.....	2	
Chicopee.....		2	Mount Vernon.....	3	1
Easthampton.....		1	Newburgh.....	6	
Everett.....	2	1	New York.....	256	125
Fall River.....	2	1	Niagara Falls.....	4	2
Framingham.....		2	Port Chester.....	1	

CITY REPORTS FOR WEEK ENDED JUNE 3, 1922—Continued.

PNEUMONIA (ALL FORMS)—Continued.

City.	Cases.	Deaths.	City.	Cases.	Deaths.
New York—Continued.			South Dakota:		
Rochester.....	17	3	Sioux Falls.....		1
Rome.....	2	2	Tennessee:		
Saratoga Springs.....	2		Memphis.....		4
Syracuse.....	9	4	Nashville.....		2
Troy.....	5		Texas:		
Watertown.....		1	Dallas.....		1
White Plains.....	2		El Paso.....		1
Yonkers.....		2	Fort Worth.....		3
North Carolina:			Galveston.....		1
Salisbury.....		1	Houston.....		2
Wilmington.....		1	Utah:		
Ohio:			Provo.....	2	
Akron.....	5		Salt Lake City.....		3
Canton.....		1	Vermont:		
Cincinnati.....	1		Rutland.....		2
Cleveland.....	21	10	Virginia:		
Dayton.....	1		Norfolk.....		1
East Cleveland.....		1	Portsmouth.....		1
Findlay.....		1	Richmond.....		3
Hamilton.....		1	West Virginia:		
Mansfield.....		1	Huntington.....		1
Toledo.....		1	Wheeling.....		1
Youngstown.....		3	Wisconsin:		
Oregon:			Janesville.....		1
Portland.....		5	Kenosha.....		2
Pennsylvania:			Wilwaukee.....	1	
Philadelphia.....	52	34	Racine.....		2
Rhode Island:			Superior.....		1
Providence.....		7	West Allis.....	1	
South Carolina:			Wyoming:		
Charleston.....		2	Cheyenne.....	2	1

POLIOMYELITIS (INFANTILE PARALYSIS).

The column headed "Median for previous years" gives the median number of cases reported during the corresponding weeks of the years 1915 to 1921, inclusive. In instances in which data for the full seven years are incomplete, the median is that for the number of years for which information is available.

City.	Median for pre- vious years.	Week ended June 3, 1922.		City.	Median for pre- vious years.	Week ended June 3, 1922.	
		Cases.	Deaths.			Cases.	Deaths.
California:				New Hampshire:			
San Diego.....	0	1		Keene.....	0		1
Massachusetts:				New York:			
Medford.....	0	1		New York.....	1	1	
Michigan:				Pennsylvania:			
Grand Rapids.....	0	1	1	Philadelphia.....	0	1	

RABIES IN ANIMALS.

City.	Cases.	City.	Cases.
California:		Georgia:	
Los Angeles.....	7	Macon.....	2
Pasadena.....	2	Kentucky:	
		Louisville.....	1

RABIES IN MAN.

City.	Cases.	Deaths.
New York:		
New York.....	1	1

ROCKY MOUNTAIN SPOTTED OR TICK FEVER.

Montana:		
Billings.....	1	

CITY REPORTS FOR WEEK ENDED JUNE 3, 1922—Continued.

SCARLET FEVER.

See p. 1548; also Telegraphic weekly reports from States, p. 1538, and Monthly summaries by States, p. 1542.

SMALLPOX.

The column headed "Median for previous years" gives the median number of cases reported during the corresponding weeks of the years 1915 to 1921, inclusive. In instances in which data for the full seven years are incomplete, the median is that for the number of years for which information is available.

City.	Median for pre- vious years.	Week ended June 3, 1922.		City.	Median for pre- vious years.	Week ended June 3, 1922.	
		Cases.	Deaths.			Cases.	Deaths.
Alabama:				Missouri:			
Mobile.....	0	4		Kansas City.....	11	2	
Arizona:				St. Louis.....	5	1	
Tucson.....	0		2	Montana:			
California:				Billings.....	0	1	
Los Angeles.....	2	5	1	Great Falls.....	5	7	
Sacramento.....	0	2		New York:			
San Diego.....	0	1		Niagara Falls.....	0	21	
Stockton.....	0	3		North Carolina:			
Colorado:				Durham.....	0	1	
Denver.....	17	5		North Dakota:			
Connecticut:				Grand Forks.....	0	3	
Bridgeport.....	0	1		Ohio:			
New Haven.....		1		Alliance.....	0	1	
District of Columbia:				Canton.....	2	3	
Washington.....	2	2		Chillicothe.....	0	3	
Georgia:				Dayton.....	0	1	
Atlanta.....	12	2		Sandusky.....	0	1	
Macon.....	1	3		Springfield.....	0	1	
Savannah.....	0	1		Toledo.....	3	2	
Illinois:				Oklahoma:			
Peoria.....	7	5		Oklahoma.....	10	2	
Indiana:				Oregon:			
Fort Wayne.....	1	1		Portland.....	2	5	
Indianapolis.....	8	2		South Dakota:			
Iowa:				Sioux Falls.....	1	5	
Des Moines.....	6	5		Texas:			
Muscatine.....	2	1		Dallas.....	2	1	
Sioux City.....	4	1		Fort Worth.....	4	1	
Kansas:				Washington:			
Coffeyville.....	1	1		Bellingham.....	2	1	
Hutchinson.....	0	2		Everett.....	0	2	
Kansas City.....	2	2		Seattle.....	5	1	
Lawrence.....	0	1		Spokane.....	4	1	
Kentucky:				Tacoma.....	1	1	
Louisville.....	1	1		Walla Walla.....	0	1	
Michigan:				Yakima.....	0	2	
Detroit.....	12	1		West Virginia:			
Flint.....	2	1		Bluefield.....	2	1	
Grand Rapids.....	1	1		Fairmont.....	0	1	
Minnesota:				Wisconsin:			
Duluth.....	4	1		Milwaukee.....	6	7	
Minneapolis.....	23	1		Superior.....	1	16	
St. Paul.....	8	6		Wausau.....	0	2	

TETANUS.

City.	Cases.	Deaths.	City.	Cases.	Deaths.
California:			Michigan:		
San Diego.....	1		Detroit.....		1
Florida:			Minnesota:		
Tampa.....	1		Minneapolis.....		1
Illinois:			North Carolina:		
Chicago.....		1	Durham.....		1
Maryland:					
Baltimore.....		2			

CITY REPORTS FOR WEEK ENDED JUNE 3, 1922—Continued.

TUBERCULOSIS.

See p. 1548; also Telegraphic weekly reports from States, p. 1538.

TYPHOID FEVER.

The column headed "Median for previous years" gives the median number of cases reported during the corresponding weeks of the years 1915 to 1921, inclusive. In instances in which data for the full seven years are incomplete, the median is that for the number of years for which information is available.

City.	Median for pre- vious years.	Week ended June 3, 1922.		City.	Median for pre- vious years.	Week ended June 3, 1922.	
		Cases.	Deaths.			Cases.	Deaths.
Alabama:				Minnesota:			
Anniston.....	0	1		Minneapolis.....	1	1	
Birmingham.....	3	2	1	Rochester.....	0	2	
Arkansas:				Winona.....	0	1	
Fort Smith.....	0	3		Missouri:			
Little Rock.....	0	6		St. Louis.....	2	2	
California:				Springfield.....	0		1
Riverside.....	0	1	1	Nebraska:			
Sacramento.....	0	1	1	Omaha.....	0	1	
San Francisco.....	2	1		New Jersey:			
Stockton.....	0	7		Newark.....	0	1	
Colorado:				Trenton.....	0	1	
Denver.....	0		1	New York:			
Connecticut:				Albany.....	0	1	
Greenwich.....	0	1		New York.....	17	10	2
New Britain.....	0	1		Ohio:			
New Haven.....	1	1		Cincinnati.....	0		1
Delaware:				Cleveland.....	3	1	
Wilmington.....	0	1		Lima.....	0	3	
District of Columbia:				Piqua.....	0	1	
Washington.....	1	17	1	Oregon:			
Florida:				Portland.....	1	1	
Tampa.....		5		Pennsylvania:			
Georgia:				Canonsburg.....	0	12	
Atlanta.....	1	1		Chester.....	0	1	
Brunswick.....	0	1	1	Lancaster.....	0	2	
Macon.....	1	3		Philadelphia.....	7	6	1
Savannah.....	1	2		Pittsburgh.....	2	6	
Indiana:				Washington.....	0	1	
Indianapolis.....	0		1	York.....	0	2	
Mishawaka.....	0	1		South Carolina:			
Iowa:				Greenville.....	1	1	
Waterloo.....	0	2		Tennessee:			
Kentucky:				Memphis.....	0	5	
Louisville.....	1	2		Nashville.....	2	2	
Louisiana:				Texas:			
New Orleans.....	3	1	1	Dallas.....	1	1	
Maine:				El Paso.....	0	1	
Portland.....	1	2		Fort Worth.....	0	2	
Maryland:				Galveston.....	1		1
Baltimore.....	4	3		Houston.....	0		1
Massachusetts:				Utah:			
Boston.....	3	1		Salt Lake City.....	0	1	
Danvers.....	0		1	Virginia:			
Fall River.....	2	1		Alexandria.....	1		1
Holyoke.....	0	1		West Virginia:			
Lowell.....	0	1		Charleston.....	0	1	
New Bedford.....	0	1		Wisconsin:			
North Adams.....	0	1		Oshkosh.....	0		1
Woburn.....	0		1				
Michigan:							
Detroit.....	5	5	1				
Highland Park.....	0		1				
Port Huron.....	0	3					

CITY REPORTS FOR WEEK ENDED JUNE 3, 1922—Continued.

DIPHThERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS.

City.	Population Jan. 1, 1920, subject to correction.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuberculosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Alabama:										
Anniston.....	17,734		1						2	
Birmingham.....	178,270	53	1		3		1		11	6
Mobile.....	60,151	22								5
Montgomery.....	43,464	13							2	2
Arizona:										
Tucson.....	20,292	16								6
Arkansas:										
Fort Smith.....	28,811	8								
Hot Springs.....	11,695	4								
Little Rock.....	64,997								2	
North Little Rock.....	14,048	1								1
California:										
Alameda.....	28,806	7	1		1		5			
Eureka.....	12,923	0			7		1		1	1
Long Beach.....	55,593	17	6							
Los Angeles.....	576,673	177	42	4	5		23		76	21
Oakland.....	216,361	40	10	1	4		1		4	3
Pasadena.....	45,354	7	4	1	1		1		1	
Richmond.....	16,843	1	3							
Riverside.....	19,341	8							4	3
Sacramento.....	65,857	17					4			3
San Bernardino.....	18,721	8							1	2
San Diego.....	74,683	35	1	2	3		7		1	3
San Francisco.....	508,410	114	17		18		3		28	12
Santa Ana.....	15,485	2	1							
Santa Barbara.....	19,441	5								
Santa Cruz.....	10,917	4								
Stockton.....	40,296	6					1			
Vallejo.....	21,107	4								
Colorado:										
Denver.....	256,369	77	12	2	4		14			9
Greeley.....	10,883	1								
Pueblo.....	42,908	3	2				2		1	
Trinidad.....	10,906		1							
Connecticut:										
Bridgeport.....	143,538	36	3		17	1	6		4	6
Bristol.....	20,620	2								
Derby.....	11,238	2								
Fairfield.....	11,475	1			1		1			
Greenwich.....	22,123				8		2			
Hartford.....	138,036	20	6		22		1		5	
Manchester.....	18,370	1			2					
Milford.....	10,193	1			3					
New Britain.....	59,316	4								
New Haven.....	162,519	48	8	1	116	2	1		6	
New London.....	25,688	8	3		1					
Norwalk.....	27,700	12					1			
Norwich.....	22,304	7			1				1	1
Waterbury.....	91,410	12	1		5		3		2	1
Delaware:										
Wilmington.....	110,168	25								2
District of Columbia:										
Washington.....	437,671	88	13	1	31		4		23	12
Florida:										
Tampa.....	51,252	9	2						5	1
Georgia:										
Albany.....	11,555		2							
Atlanta.....	200,616	76	1				6		2	6
Brunswick.....	14,413	2								
Macou.....	52,995		1		1					
Rome.....	13,252		1				1			
Savannah.....	83,252	37								5
Valdosta.....	10,783	1								
Idaho:										
Boise.....	21,393	3								
Pocatello.....	15,001	2								
Illinois:										
Alton.....	24,682	2	1				2		1	1
Aurora.....	36,397	10	1	1	8		1			
Bloomington.....	28,725								3	1
Centralia.....	12,491	3								
Chicago.....	2,701,705	538	93	13	546	6	50	2	139	43
Cicero.....	44,995	4	1		5					
Danville.....	33,750	11	1		1		1		4	2

CITY REPORTS FOR WEEK ENDED JUNE 3, 1922—Continued.

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS—Continued.

City.	Popula- tion Jan. 1, 1920, subject to correction.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuber- culosis.		
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	
Illinois—Continued.											
Decatur.....	43,818	5	2				2				
East St. Louis.....	66,740	13			1				1	1	
Elgin.....	27,454	4									
Evanston.....	37,215	13			2						
Forest Park.....	10,768				2						
Freeport.....	19,660	6	1		1		2		2		
Galesburg.....	23,834	8			1						
La Salle.....	13,050	4							1		
Mattoon.....	13,552	6	1							1	
Oak Park.....	39,830	10	2		16				1		
Peoria.....	76,121	17	2				3		1	2	
Quincy.....	35,978	11	1		1						
Rockford.....	65,651	11	2		15		1			1	
Rock Island.....	35,177	10	1						2	4	
Springfield.....	59,183	14							2		
Indiana:											
Anderson.....	29,767	6			1						
Clinton.....	10,962	0									
Crawfordsville.....	10,139	2									
East Chicago.....	35,967	16									
Fort Wayne.....	36,549	18	0				1			1	
Frankfort.....	11,585	6							1	1	
Gary.....	55,378	11									
Hammond.....	36,004	5								1	
Indianapolis.....	314,194	59	4		136		5		1	1	
Kokomo.....	30,067	5	2	1					1	1	
La Fayette.....	22,486	4					1				
Logansport.....	21,626	7								1	
Mishawaka.....	15,195	3	1						5		
Muncie.....	36,624	12									
South Bend.....	70,983	14	1		25		2		5	1	
Terre Haute.....	66,083	17	3	1	7		4		1	4	
Iowa:											
Burlington.....	24,057								2		
Cedar Rapids.....	45,566						2				
Clinton.....	24,151		3								
Council Bluffs.....	36,162	7	2	1	3					1	
Davenport.....	56,727		2								
Des Moines.....	126,468		3				15				
Iowa City.....	11,267		1								
Mason City.....	20,065	9	1								
Muscatine.....	16,068	2					1				
Sioux City.....	71,227		2	1							
Waterloo.....	36,230						1				
Kansas:											
Coffeyville.....	13,452	3	1								
Fort Scott.....	10,693	1									
Hutchison.....	23,293						1		1		
Kansas City.....	101,177		1				1				
Lawrence.....	12,456	4									
Parsons.....	16,028	4	1								
Salina.....	15,095	5					1				
Topeka.....	50,022	10	5				2		4	1	
Wichita.....	72,128	20	11		6		3		1	1	
Kentucky:											
Covington.....	57,121	12			10						
Lexington.....	41,534	14			33				4	2	
Louisville.....	234,891	64	2		12		1		17	5	
Owensboro.....	17,424		4		1				1		
Louisiana:											
New Orleans.....	387,219	129	12				2		14	13	
Maine:											
Auburn.....	16,985	7					2		1		
Bath.....	14,731	6									
Biddeford.....	18,008	9									
Lewiston.....	31,791	12					1				
Portland.....	60,272	18	2				3				
Maryland:											
Baltimore.....	733,826	174	11	1	183	1	15		67	21	
Cumberland.....	29,837	6			2					1	
Massachusetts:											
Amesbury.....	10,036	5	2								
Arlington.....	18,665	5			21						
Attleboro.....	19,731	4			1		1		2		

CITY REPORTS FOR WEEK ENDED JUNE 3, 1922—Continued.

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS—Continued.

City.	Population Jan. 1, 1920, subject to correction.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuberculosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Massachusetts—Continued.										
Belmont.....	10,749	5			1		3			
Beverly.....	22,561	2			10		2			
Boston.....	748,060	193	50	1	206	1	39	1	45	23
Braintree.....	10,580	3			2		2		1	1
Brookline.....	37,748	12			29		3		1	1
Cambridge.....	109,694	18	5		77	2	6		5	3
Chelsea.....	43,184	5			10		1		2	
Chicopee.....	36,214	6			4					
Clinton.....	12,979	0								
Danvers.....	11,108		1		1					
Dedham.....	10,792	3					1			
Easthampton.....	11,261	1			1					
Everett.....	40,120	8					4		3	
Fall River.....	120,485	37	3		1		3		9	4
Frammingham.....	17,033	6			1					
Gardner.....	16,971	5			2		1		1	
Greenfield.....	15,462	0								
Haverhill.....	53,884	13	1				1		1	2
Holyoke.....	60,203	13			11		2			
Lawrence.....	94,270	19	2		16		1		3	1
Leominster.....	19,744	4		1			1		1	
Lowell.....	112,479	17	4				2		9	1
Lynn.....	99,148	19	1		14		5			1
Malden.....	49,103	10	4		5		1	2	3	1
Medford.....	39,038	2	1		5		1	1		
Melrose.....	18,204	4			11					
Methuen.....	15,189	7			6				1	1
New Bedford.....	121,217	25	8		2		5		8	1
Newburyport.....	15,618	5			1					
Newton.....	46,054	13	1		25		10		1	
North Adams.....	22,282	4								
Northampton.....	21,951	7			13				1	1
Norwood.....	12,627	2			20					
Pittsfield.....	41,751	13	2				3		4	
Plymouth.....	13,045	3								
Quincy.....	47,876	10	1		30		1		4	
Somerville.....	93,091	23	1		20		6		2	
Southbridge.....	14,245	2			2					
Springfield.....	129,563	41	1		77	1	1		6	4
Taunton.....	37,137	13								
Wakefield.....	13,025	1			1		1		1	
Waltham.....	30,915	13			4		4		4	
Watertown.....	21,457	1			4		1			
Webster.....	13,258	2			12		3		1	
West Springfield.....	13,443	1								
Westfield.....	18,604	4							1	
Weymouth.....	15,057	6								
Winthrop.....	15,455	2			1					
Woburn.....	16,574	5								1
Worcester.....	179,754	41	3				9		7	1
Michigan:										
Alpena.....	11,101	0								
Ann Arbor.....	19,516	13	2		1				2	1
Battle Creek.....	36,164		3		14		1			
Benton Harbor.....	12,233	7	1				1			
Detroit.....	903,739	190	42		174	4	48		38	19
Flint.....	91,599	19			27					1
Grand Rapids.....	137,634	38	3				2		4	1
Hamtramck.....	48,615	0	2		3				1	
Highland Park.....	46,490	12			33		3			
Ironwood.....	15,739	6								1
Jackson.....	48,374	11			1				11	
Kalamazoo.....	48,858	19	5		1		6	1		1
Marquette.....	12,718	4								
Muskegon.....	36,570	13	1		1					
Pontiac.....	34,273	10	1		33		5		2	2
Port Huron.....	25,944	5			6					
Sault Ste. Marie.....	12,096	3					3	1	2	1
Minnesota:										
Duluth.....	98,917	8			1				7	
Faribault.....	11,089	8	1							2
Hibbing.....	15,089			1			2			
Minneapolis.....	380,582	78	6	1	71	2	27		23	13

CITY REPORTS FOR WEEK ENDED JUNE 3, 1922—Continued.

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS—Continued.

City.	Popula- tion Jan. 1, 1920, subject to correction.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuber- culosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Minnesota—Continued.										
Rochester.....	13,722	18								
St. Cloud.....	15,873						3			
St. Paul.....	234,595	50	5		70		14		7	
Winona.....	19,143	8			12					
Missouri:										
Independence.....	11,685	2								
Kansas City.....	324,410	97	2		17	1	1		13	11
St. Joseph.....	77,939	33								
St. Louis.....	772,897	150	18		8		12		44	6
Springfield.....	39,631	5								
Montana:										
Billings.....	15,100	3								1
Great Falls.....	24,121	5	3						1	1
Missoula.....	12,668	7							1	
Nebraska:										
Lincoln.....	54,934	4			23		1			
Omaha.....	191,601	38	5		23		1			3
Nevada:										
Reno.....	12,016	3	2							
New Hampshire:										
Berlin.....	16,104	3	1	1						
Concord.....	22,167	11			6					2
Dover.....	13,029	5			1					
Keene.....	11,210	5			1		1			1
Portsmouth.....	13,569				6					
New Jersey:										
Asbury Park.....	12,400	3			8		2			
Atlantic City.....	50,682	14			4		1		1	
Bayonne.....	76,754				7		1		6	
Belleville.....	15,660				15		1		1	
Bloomfield.....	22,019	18			13		3		1	
Clifton.....	26,470	2	1		13	1	6		2	
East Orange.....	50,710		2		28		1		2	1
Elizabeth.....	95,682		7		25		5		2	1
Englewood.....	11,627	3	1		17				2	
Garfield.....	19,381	0	1		8		3		1	
Hackensack.....	17,667	5			25					
Harrison.....	15,721		2		3				1	
Hoboken.....	68,166	21	4		4		2			1
Jersey City.....	297,894		11		15		18		4	
Montclair.....	28,810	2			2		2			
Morristown.....	12,548	3			3		2			
Newark.....	414,216	99	8	3	241	1	30		27	8
Orange.....	33,268	4			14		2		2	
Passaic.....	63,824	11	2	1	27		4			
Paterson.....	135,866		2		93		5			
Perth Amboy.....	41,707	6	4		10		5		2	
Phillipsburg.....	16,923	5							5	
Plainfield.....	27,700	10	2		31	1	2		3	
Summit.....	10,174	1			23		1			
Trenton.....	119,289	30	5	1	60	2	2		4	3
Union.....	20,651		1		2		3		1	
West New York.....	29,926	1	3		3					
West Orange.....	15,573	4			9		2			1
New Mexico:										
Albuquerque.....	15,157	5	1				6		2	1
New York:										
Albany.....	113,344		3		5		2		2	
Auburn.....	36,192	12							1	
Buffalo.....	508,775	119	8		3		23		30	9
Elmira.....	45,305	5	1		12		2			
Fulton.....	13,043	2								
Geneva.....	14,648	4								
Hornell.....	15,025	2			25					
Hudson.....	11,745	2	1							
Ithaca.....	17,004	7							1	
Lackawanna.....	17,918	4	1				3			1
Lockport.....	21,308		1				1			
Mount Vernon.....	42,726	6	1	1	27		1		1	
Newburgh.....	30,366	8	1	1	50					
New York.....	5,621,151	1,324	244	17	1,399	44	218	2	1,229	1104

¹Pulmonary tuberculosis only.

CITY REPORTS FOR WEEK ENDED JUNE 3, 1922—Continued.

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS—Continued.

City.	Popula- tion Jan. 1, 1920, subject to correction.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuber- culosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
New York—Continued.										
Niagara Falls.....	50,760	11	1		40		11		1	3
North Tonawanda.....	15,482	4					2			1
Ogdensburg.....	14,609	10								
Olean.....	20,506	6					1		1	
Peekskill.....	15,868	5							1	
Port Chester.....	16,573	3			17					
Rochester.....	295,750	68	7	1	125	5	1			3
Rome.....	26,341	11	3				1			3
Saratoga Springs.....	13,181	1								
Schenectady.....	88,723	21	2	1			1		2	2
Syracuse.....	171,717	47	19	1	4		7		6	2
Troy.....	72,013	28	1						1	1
Watertown.....	31,285	7					1			
Watervliet.....	16,073	4								1
White Plains.....	21,031	2			6					
Yonkers.....	100,226	16	2	1	42		8			1
North Carolina:										
Charlotte.....	46,338	25								2
Durham.....	21,719	9							1	
Rocky Mount.....	12,742	6								2
Salisbury.....	13,884	5								
Wilmington.....	33,372	13			1					
Winston-Salem.....	48,395	14							5	1
North Dakota:										
Fargo.....	21,961	0					1			
Grand Forks.....	14,010									
Ohio:										
Akron.....	208,435	23	3		104		2		11	
Alliance.....	21,603	2			3					
Ashtabula.....	22,082	1								1
Barberton.....	18,811	3								
Bucyrus.....	10,425	1								
Cambridge.....	13,104	6	1		4					
Canton.....	87,091	18	1		14		1			1
Chillicothe.....	15,831	2								
Cincinnati.....	401,247	82	12		93	1	4		14	15
Cleveland.....	796,836	149	20	1	441	7	21	2	37	12
Cleveland Heights.....	15,236				15		1			
Columbus.....	237,031	46	2		37				6	3
Dayton.....	152,559	30	3		9		3		3	
East Cleveland.....	27,292	4			16					
Findlay.....	17,021	7								
Fremont.....	12,468	4			1					
Hamilton.....	39,675	12			20					
Kenmore.....	12,683									
Lancaster.....	14,706	7					1			1
Lima.....	41,306	4	1							
Mansfield.....	27,824	7	2	1					1	
Marion.....	27,891		1							
Martins Ferry.....	11,634	4			1					
Middletown.....	23,594	4								2
Newark.....	26,718	4			2		1			1
Niles.....	13,080	1	6						1	
Norwood.....	24,966	3	1		3		1		2	
Piqua.....	15,044	3								
Salem.....	10,305	3			17		1		1	1
Sandusky.....	22,897	5	1		1				2	1
Springfield.....	60,840	14	1						3	2
Steubenville.....	28,508	8							1	
Tiffin.....	14,375	5								
Toledo.....	243,109	44	19		120	1	2		7	5
Youngstown.....	132,358		3	1	39	1	1		4	2
Zanesville.....	29,569	6	3				2			1
Oklahoma:										
Oklahoma.....	91,258	15		1			4		11	2
Oregon:										
Portland.....	258,288	55	4	1					5	4
Pennsylvania:										
Allentown.....	73,502		2							
Altoona.....	60,331				2		1			
Berwick.....	12,181				21					

CITY REPORTS FOR WEEK ENDED JUNE 3, 1922—Continued.

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS—Continued.

City.	Popula- tion Jan. 1, 1920, subject to correction.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuber- culosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Pennsylvania—Continued.										
Bethlehem.....	50,358		5		13				1	
Braddock.....	20,879		3		3					
Bristol.....	10,273				30		1			
Butler.....	23,778		1				1		1	
Canonsburg.....	10,632		1		2		1			
Carlisle.....	10,916		1		10					
Carnegie.....	11,516				1					
Carrick.....	10,504		2		1					
Chester.....	58,030				12		6		2	
Connellsville.....	13,804		1							
Duquesne.....	19,011				1					
Roston.....	33,813		2		8				6	
Erie.....	93,372		1		4		1		4	
Farrell.....	15,586						1			
Harrisburg.....	75,917				31		1			
Hazleton.....	32,277		1		4					
Homestead.....	20,452				1					
Jeannette.....	10,627				2					
Johnstown.....	67,327		4		59		2			
Lancaster.....	53,150		3				4		2	
Lebanon.....	24,643		1				2			
McKeesport.....	45,975		1		29					
McKee's Rocks.....	16,713		3		11					
Mahanoy City.....	15,599						1			
Monessen.....	18,179		1							
Nanticoke.....	22,614		1							
New Castle.....	44,938		1		14		1			
New Kensington.....	11,987				1					
Norristown.....	32,319		1							
North Braddock.....	14,928				2					
Oil City.....	21,274								2	
Olyphant.....	10,236								1	
Philadelphia.....	1,823,158	433	56	8	170	2	86	1	80	46
Pittsburgh.....	588,193		29		365		26		19	
Pittston.....	18,497				1					
Plymouth.....	16,500				1					
Pottsville.....	21,876		1		1					
Reading.....	107,784		1		52		2		4	
Scranton.....	137,783		3		8					
Shamokin.....	21,204				26					
Sharon.....	21,747		1		1					
Shenandoah.....	24,726				5					
Steelton.....	13,428						1			
Sunbury.....	15,721				2					
Swissvale.....	10,908		1		24					
Tamaqua.....	12,363				15					
Uniontown.....	15,692		1		2		1			
Washington.....	21,480		1		1		1			
West Chester.....	11,717		1		1					
Wilkes-Barre.....	73,833		2		15		4		2	
Wilkesburg.....	24,403				23		2			
Williamsport.....	36,198		1		9		1			
York.....	47,512		1		1					
Rhode Island:										
Cranston.....	29,407	3								
Newport.....	30,255	4					3			
Pawtucket.....	64,248	9								
Providence.....	237,595	51	6		4		5			2
South Carolina:										
Charleston.....	67,957	24								3
Columbia.....	37,524		1						5	
Greenville.....	23,127	6								1
South Dakota:										
Sioux Falls.....	25,176	8								
Tennessee:										
Knoxville.....	77,818				5				3	3
Memphis.....	162,351	58	2		1		1		12	6
Nashville.....	118,342	33	1				4		11	

CITY REPORTS FOR WEEK ENDED JUNE 3, 1922—Continued.

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS—Continued.

City.	Population Jan. 1, 1920, subject to correction.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuberculosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Texas:										
Beaumont.....	40,422	7							1	..
Corpus Christi.....	10,522	4							1	..
Dallas.....	133,976	34	4	1	53		4		5	2
El Paso.....	77,543	46					3			12
Fort Worth.....	106,482	26	1		2		1		4	2
Galveston.....	44,255	12	1							2
Houston.....	135,076	45								2
Waco.....	38,500	4								
Utah:										
Provo.....	10,303	1								
Salt Lake City.....	118,110	24	7				1			1
Vermont:										
Burlington.....	22,779	4								
Rutland.....	14,954	8			1					2
Virginia:										
Alexandria.....	18,060	7								..
Danville.....	21,539	7							2	..
Lynchburg.....	29,956	4	1						1	..
Norfolk.....	115,777						1		3	..
Petersburg.....	31,002	12	1						1	..
Portsmouth.....	54,387	18								2
Richmond.....	171,667	45			62	1	2		21	5
Roanoke.....	50,842	15	2							2
Washington:										
Everett.....	27,644		1							..
Seattle.....	315,652	2			1		3		20	..
Spokane.....	104,437		1		1		6			..
Tacoma.....	96,965		1		2				2	..
Yakima.....	18,539		1							..
West Virginia:										
Bluefield.....	15,282	10	1							..
Charleston.....	39,608	14	1							1
Clarksburg.....	27,869	5								..
Fairmont.....	17,851		1							..
Huntington.....	50,177	18								1
Martinsburg.....	12,515				2					..
Moundsville.....	10,669				3		1			..
Parkersburg.....	20,050	9								1
Wheeling.....	54,322	12	4		2		1		7	1
Wisconsin:										
Appleton.....	19,561		1							..
Beloit.....	21,284	6								..
Eau Claire.....	20,890		1				1			..
Fond du Lac.....	23,427	7								..
Green Bay.....	31,017		2							..
Janesville.....	18,293	2								..
Kenosha.....	40,472	6	3							..
La Crosse.....	30,363				12		3			..
Manitowoc.....	17,563		1							..
Milwaukee.....	457,147		2		14		7		10	..
Oshkosh.....	33,162	8								..
Racine.....	58,593	4	1		2				3	1
Sheboygan.....	30,955		6				1		1	..
Superior.....	39,624	7					2		1	..
West Allis.....	13,765								2	..
Wyoming:										
Cheyenne.....	13,829	6								..

FOREIGN AND INSULAR.

SMALLPOX ON VESSELS.

Steamships "Bonna" and "Comeric"—Sydney, Australia.

Two cases of smallpox were reported landed at quarantine, Sydney, Australia, April 16 and 13, 1922, one case each occurring on the steamships *Bonna* and *Comeric* from Shanghai, China, via ports. The *Bonna* left Shanghai March 12, and Moji (Japan) March 26, 1922. On April 2 the vessel arrived at Guam with a case of mild smallpox on board in the person of an officer of the vessel. At Sydney 9 of the crew whose vaccinations were not satisfactory were landed at quarantine. The *Bonna* left Sydney April 19 with 22 members of the crew under surveillance.

The steamship *Comeric* left Shanghai for Newcastle, Australia, March 25, 1922. On April 8 smallpox developed in a Malay sailor. The vessel was ordered to proceed direct to Sydney, where the crew were vaccinated and the vessel was disinfected. On April 24 two of the crew were isolated for observation. The *Comeric* was released from quarantine April 19, 1922.

CHINA.

Plague—Foochow—April, 1922.

Plague was reported present at Foochow, China, during the month of April, 1922, with 21 cases and 12 deaths notified during the period April 16 to 29, and 13 cases with 9 deaths notified during the week ended April 22, 1922.

GREAT BRITAIN.

Foot and Mouth Disease—Birmingham.

Prevalence of foot-and-mouth disease among swine forwarded to market was reported, June 13, 1922, at Birmingham, England.

JAMAICA.

Alastrim.

During the period April 30 to May 27, 1922, 59 new cases of alastrim were reported in the Island of Jamaica.

Typhoid Fever—Kingston and Vicinity.

During the period under report 17 cases of typhoid fever were reported in Kingston, Jamaica, and 77 cases in the surrounding country.

MEXICO.

Plague-Infected Rodent—Tampico.

During the week ended June 10, 1922, 1 plague-infected rodent was reported found at Tampico, Mexico, making a total of 18 plague-infected rodents found at that place from January 1 to June 10, 1922.

Smallpox—Mexicali—May, 1922.

Information dated June 3, 1922, shows the prevalence of smallpox at Mexicali, Lower California, Mexico, during the month of May, 1922, with 100 reported cases and 15 deaths from the disease. The type of the disease was stated to be virulent.

VIRGIN ISLANDS.

Contagious Diseases—February, March, and April, 1922.¹

The occurrence of contagious diseases in the Virgin Islands during the months of February, March, and April, 1922, has been reported as follows:

February, 1922.

Island and disease.	Cases.	Remarks.
In St. Thomas and St. John:		
Chancroid.....	1	
Dysentery.....	2	Unclassified.
Gonococcus infection.....	2	1 imported.
Measles.....	14	St. John, 4.
Syphilis.....	3	1 imported.
In St. Croix:		
Chancroid.....	1	
Filariasis.....	7	Bancrofti.
Gonococcus infection.....	1	
Syphilis.....	5	
Trachoma.....	60	
Tuberculosis.....	1	Chronic pulmonary.
Uncinariasis.....	1	Necator Americanus.

March, 1922.

Island and disease.	Cases.	Remarks.
In St. Thomas and St. John:		
Chancroid.....	5	1 imported.
Chicken pox.....	14	
Dengue.....	1	
Gonococcus infection.....	5	
Mumps.....	1	
Sprue.....	1	
Syphilis.....	2	1 imported.
Tuberculosis.....	1	Chronic pulmonary.
Uncinariasis.....	1	Necator Americanus.
In St. Croix:		
Chicken pox.....	5	
Dengue.....	4	
Gonococcus infection.....	3	
Filariasis.....	4	Bancrofti.
Schistosomiasis.....	2	
Syphilis.....	1	
Trachoma.....	6	
Tuberculosis.....	1	Chronic pulmonary.

¹ Public Health Reports, Mar. 17, 1922, p. 674.

April, 1922.

Island and disease.	Cases.	Remarks.
In St. Thomas and St. John:		
Chancroid.....	2	
Chicken pox.....	16	
Gonococcus infection.....	6	2 imported.
Measles.....	2	St. John, 1.
Trachoma.....	3	
Tuberculosis.....	3	St. John, 1. Chronic pulmonary.
In St. Croix:		
Chancroid.....	1	
Chicken pox.....	1	
Dysentery.....	4	Entamebic.
Filariasis.....	2	Bancrofti.
Gonococcus infection.....	3	
Syphilis.....	4	
Trachoma.....	71	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER.**Reports Received During Week Ended June 23, 1922.¹****CHOLERA.**

Place.	Date.	Cases.	Deaths.	Remarks.
China:				
Amoy.....	Apr. 23-29.....			One suspect case.
India:				
Calcutta.....	Apr. 29-May 6.....	128	107	
Rangoon.....	Mar. 5-18.....	16	16	
Indo-China:				
Saigon.....	Apr. 2-22.....	9	9	
Siam:				
Bangkok.....	Apr. 16-29.....	5	3	

PLAGUE.

Ceylon:				
Colombo.....	Apr. 30-May 6.....	2		
China:				
Amoy.....	Apr. 24-May 6.....		24	
Foochow.....	Apr. 16-29.....	21	12	
Hongkong.....	June 4-10.....	66	35	Apr. 3-15: Present. Chinese, 65 cases, Hindu, one case; deaths, Chinese, 34; Hindu, 1. Missing reports received show: Apr. 23-May 13, cases, 322; deaths, 198.
India.....				Apr. 9-22, 1922: Cases, 4,049; deaths, 3,268.
Bombay.....	Apr. 9-15.....	52	45	
Calcutta.....	Apr. 30-May 6.....	16	16	
Karachi.....	May 7-13.....	58	40	
Rangoon.....	Mar. 5-18.....	318	228	
Indo-China:				
Saigon.....	Apr. 2-8.....	3	1	Apr. 16-22: One plague rat.
Java.....				Mar. 1-31, 1922: Including Island of Madoera—cases, 761; deaths, 785.
East Java—				
Soerabaya.....	Apr. 9-15.....	1	1	
Mexico:				
Tampico.....				June 4-10, 1922: 1 plague-infected rodent found.
Peru.....	Apr. 1-30.....	73	32	
Siam:				
Bangkok.....	Apr. 16-29.....	2	1	
Turkey:				
Constantinople.....	May 7-13.....		1	

¹From medical officers of the Public Health Service, American consuls and other sources

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received During Week Ended June 23, 1922—Continued.

SMALLPOX.

Place.	Date.	Cases.	Deaths.	Remarks.
Asia Minor:				
Smyrna.....	May 6-13.....	3	.....
Brazil:				
Para.....	May 22-28.....	.....	1	
Rio de Janeiro.....	May 7-13.....	9	1	
Canada:				
British Columbia—				
Vancouver.....	May 21-27.....	1	.....
New Brunswick—				
Madawaska County....	May 21-June 3....	4	.....
Ontario—				
Hamilton.....	June 4-10.....	3	.....
Niagara Falls.....	do.....	1	.....
Quebec—				
Montreal.....	May 21-27.....	35	24	
Ceylon:				
Colombo.....	Apr. 23-29.....	2	.....
China:				
Amoy.....	do.....	.....	1	Apr. 30-May 6, 1922: Present.
Canton.....	Apr. 1-30.....	.....	.....	Present.
Chungking.....	Apr. 30-May 6.....	.....	.....	Do.
Hankow.....	Apr. 30-May 13.....	2	1	
Harbin.....	Apr. 17-May 7.....	2	.....	Manchuria.
Hongkong.....	Apr. 23-May 13.....	40	33	
Mukden.....	Apr. 14-May 6.....	.....	.....	Manchuria: Present.
Shanghai.....	May 1-7.....	.....	1	Chinese.
Tsingtau.....	Apr. 30-May 7.....	2	1	
Chosen (Korea):				
Fusan.....	Apr. 1-30.....	88	30	
Seoul.....	do.....	7	3	
Cuba:				
Matanzas.....	May 1-10.....	1	.....
Dominican Republic:				
San Pedro de Macoris.....	May 7-13.....	.....	.....	In city and vicinity, 57 cases present; 2 deaths.
Santo Domingo.....	May 27-June 3....	6	6	
Egypt:				
Port Said.....	May 14-20.....	1	.....
Great Britain:				
Nottingham.....	May 7-20.....	4	.....
India:				
Bombay.....	Apr. 9-15.....	4	2	
Calcutta.....	Apr. 30-May 6.....	28	24	
Karachi.....	May 7-13.....	14	8	
Rangoon.....	Mar. 5-18.....	13	2	
Indo-China:				
Saigon.....	Apr. 2-22.....	11	8	
Java:				
West Java—				
Batavia.....	Apr. 21-27.....	6	.....	Province.
Mexico:				
Manzanillo.....	May 23-29.....	4	1	
Mexicali.....	May 1-31.....	100	15	
Portugal:				
Lisbon.....	May 14-20.....	17	1	
Spain:				
Seville.....	Apr. 23-May 20.....	.....	50	
Valencia.....	May 6-13.....	1	.....
Syria:				
Aleppo.....	Apr. 30-May 20.....	.....	.....	Present.
Turkey:				
Constantinople.....	May 6-20.....	7	2	
Union of South Africa:				
Cape Province.....	Apr. 2-15.....	.....	.....	Outbreaks.
Natal.....	do.....	.....	.....	Do.
Southern Rhodesia.....	Apr. 20-May 10.....	45	.....
Transvaal.....	Apr. 2-8.....	.....	.....	Do.
On vessels:				
S. S. Bonna.....	Apr. 16.....	1	.....	At Sydney from Shanghai and Mojl. Case developed en route to Guam. Vessel released at Sydney, Apr. 19.
S. S. Comeric.....	Apr. 13.....	1	.....	At Sydney from Shanghai. Case occurred in Malay sailor. Vessel released at Sydney, Apr. 19.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received During Week Ended June 23, 1922—Continued.

TYPHUS FEVER.

Place.	Date.	Cases.	Deaths.	Remarks.
Bulgaria:				
Sofia.....	May 14-20.....	2	.....
China:				
Harbin.....	Apr. 17-30.....	5	.....	Manchuria.
Czechoslovakia:				
Prague.....	May 7-13.....	1	.....
Egypt:				
Alexandria.....	May 14-20.....	2	.....
Hungary:				
Budapest.....	May 7-13.....		1	
Portugal:				
Oporto.....	May 21-27.....	2	1	
Rumania:				
Galatz.....	Apr. 1-30.....	1	.....
Spain:				
Seville.....	May 8-14.....		1	
Tunis:				
Tunis.....	May 21-27.....	1	1	
Turkey:				
Constantinople.....	May 7-20.....	16	.....
Union of South Africa:				
Cape Province.....	Apr. 9-15.....		.....	Outbreaks.
Transvaal—				
Johannesburg.....	Mar. 1-31.....	2	4	

Reports Received from December 31, 1921, to June 16, 1922.

CHOLERA.

Place.	Date.	Cases.	Deaths.	Remarks.
India.....				
Bombay.....	Oct. 30-Nov. 5.....	1	.....	Oct. 2-Dec. 31, 1921: Deaths, 37,749. (Corrected report.) Jan. 1-Feb. 11, 1922: Deaths, 4,324.
Do.....	Jan. 29-Apr. 1.....	2	1	
Calcutta.....	Oct. 23-Dec. 31.....	71	60	
Do.....	Jan. 1-Apr. 22.....	734	616	
Karachi.....	Nov. 6-12.....	1	1	
Madras.....	Dec. 11-31.....	4	1	
Do.....	Jan. 1-Apr. 8.....	15	9	
Rangoon.....	Oct. 1-Dec. 31.....	30	24	
Do.....	Jan. 1-Apr. 22.....	87	67	
Indo-China:				
Saigon.....	Nov. 6-12.....	1	1	
Do.....	Jan. 29-Mar. 18.....	34	30	Including 103 km. surrounding country
Java:				
West Java—				
Batavia.....	Nov. 1-7.....	2	2	At Lebak
Philippine Islands:				
Manila.....	Nov. 13-Dec. 31.....	49	18	
Do.....	Jan. 1-Apr. 15.....	84	28	
Province—				
Bulacan.....	Dec. 25-31.....	1	.....
Do.....	Feb. 12-Mar. 11.....	3	3	
Cavite.....	Jan. 1-7.....	1	1	
Cebu.....	Jan. 8-14.....	1	.....
Pampanga.....	Dec. 25-31.....	1	.....
Rizal.....	Jan. 15-28.....	18	12	
Zambales.....	Dec. 11-31.....	31	18	
Do.....	Jan. 1-7.....	5	4	
Poland.....				
Warsaw.....	Jan. 29-Feb. 25.....	1	.....	Aug. 14-Sept. 10, 1921: Cases, 4; deaths, 1.
Russia.....				
Kharkoff.....	Jan. 28.....		.....	Including the Ukraine: outbreaks reported, May 2, 1922. Present.
Kief.....	Dec. 15-Jan. 11.....	259	.....
Lettonia—				
Riga.....	.....			At quarantine station in October, 1921; 1 case

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from December 31, 1921, to June 16, 1922—Continued.

CHOLERA—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Russia—Continued.				
Lithuania.....				Present, Feb. 19, 1922, with 30 cases and mortality of 33 per cent, Kovno and vicinity.
Odessa.....	Jan. 28.....			Present.
Siam:				
Bangkok.....	Oct. 23-Dec. 24....	8	4	
Do.....	Jan. 29-Apr. 8.....	14	6	Corrected report.
Syria.....				Apr. 16-22, 1922: Reported present in interior cities.

PLAGUE.

Asia Minor:				
Smyrna.....	Nov. 27-Dec. 3....	1	1	
Do.....	Apr. 9-15.....	1		
Australia:				
New South Wales—				
Sydney.....	Nov. 27-Dec. 3....	2	1	Dec. 7-13, 1921: 4 plague rats.
Do.....	Jan. 29-Apr. 29....	15	2	Jan. 15-21, 1922: 1 plague rat.
Queensland—				
Aramac.....	Mar. 19-25.....	1	1	Inland town on railroad about 150 miles from coast.
Brisbane.....	Oct. 30-Dec. 31....	27	20	Total, Aug. 22-Dec. 31, 1921: Cases, 41; deaths, 27. Total infected rats, 54. Total cases, Jan. 1-Apr. 29, 1922: 10. Total infected rats, 17.
Do.....	Jan. 1-Mar. 18....	10		Plague rats, 9.
Bundaberg.....	Mar. 5-11.....	1		Pestis minor.
Cairns.....	Oct. 30-Dec. 31....	5		
Do.....	Jan. 1-7.....		1	
Cooktown.....	Oct. 30-Nov. 5....	1		
Ingham.....				Nov. 6-Dec. 24, 1921: Plague rats, 14. Jan. 1-14, 1922: 2 plague rats.
				Nov. 27-Dec. 3, 1921: 1 plague rat.
Instail.....				
Ipswich.....	Dec. 11-17.....	1	1	
Port Douglas.....	Nov. 13-19.....	1	1	
Townsville.....	Nov. 20-Dec. 3....	2	2	Total cases, 27; deaths, 18.
Do.....	Jan. 1-14.....		2	To Jan. 14, 1922: Cases, 32; deaths, 21.
Azores:				
Islands—				
Fayal.....	Jan. 16-22.....	2	2	
Horta.....	Feb. 2-8.....	4	2	
St. Michael.....				Nov. 27-Dec. 31, 1921: Cases, 23; deaths, 9. Jan. 1-May 6, 1922: Cases, 91; deaths, 54; occurring at localities 3 to 9 miles from port of Ponta Delgada.
				3 miles from port.
Arrifes.....	Dec. 25-31.....	1	1	
Do.....	Jan. 1-7.....	1		
Fenaces d'Ajuda.....	Nov. 27-Dec. 3....	3	2	Present. 6 miles from port.
Do.....	Jan. 15-21.....	19	8	
Ribeira Grande.....	Nov. 13-Dec. 10....	3	2	9 miles from port.
Do.....	Jan. 8-14.....	9	6	
Livramento.....	Dec. 4-10.....	2		Vicinity of Ponta Delgada.
Ponta Delgada.....	do.....	1		
Brazil:				
Bahia.....	Oct. 30-Dec. 31....	13	12	
Do.....	Jan. 1-Mar. 23....	16	12	
Para.....	Feb. 6-12.....		1	
Pernambuco.....	Feb. 26-Mar. 4....	1	1	
Porto Alegre.....	Feb. 12-18.....	3	2	
Rio de Janeiro.....	Jan. 22-28.....	1	1	
British East Africa:				
Uganda.....	Aug. 1-Dec. 31....	256	229	Aug. 1-Oct. 31, 1921: Reports of inspectors, deaths, 343; reports of chiefs, deaths, 651.
Do.....	Jan. 1-31.....	57	56	
Kenya Colony—				
Nairobi.....	Apr. 2-8.....	2	2	
Cape Verde Islands:				
St. Vincent.....	Mar. 16.....			Present. No plague mortality reported during previous 5-month period. August, 1921: Cases, 6; deaths, 3.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from December 31, 1921, to June 16, 1922—Continued.

PLAGUE—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Ceylon:				
Colombo.....	Oct. 30-Dec. 31....	13	10	Oct. 30-Dec. 24, 1921: Rodent plague, 6.
Do.....	Jan. 1-Apr. 15....	31	29	Infected rats, 12.
Chile:				
Antofagasta.....				Mar. 5-11, 1922: 1 plague rat.
China:				
Amoy.....	Feb. 18-Mar. 4.....			Present in surrounding country.
Hongkong.....	Nov. 20-Dec. 17....	6		Apr. 16-22, 1922: Deaths, 7.
Do.....	Jan. 1-May 27.....	817	456	
Ecuador:				
Guayaquil.....	Nov. 16-Dec. 31....	18	6	Rats examined, 2,958; found infected, 90. Total, July-Dec. 15, 1921: Cases, 28. Jan. 1-May 15, 1922: Rats examined, 27,000; found infected, 747.
Do.....	Jan. 1-Apr. 15.....	43	15	
Naranjito.....	Mar. 1-15.....	1		
Egypt:				
City.....				Jan. 1-Dec. 31, 1921: Cases, 356; deaths, 153. Jan. 1-May 11, 1922: Cases, 126; deaths, 55.
Alexandria.....	Dec. 5-30.....	7	2	Feb. 12-18, 1922: 1 plague rodent.
Do.....	Jan. 17-May 7.....	17	11	Mar. 12-16, 1922: 1 case, 1 death.
Port Said.....	Dec. 20.....	1		
Do.....	Mar. 15-May 6.....	3	4	Septicemic, 3 cases, 3 deaths.
Sues.....	Nov. 22-Dec. 31....	16	9	
Do.....	Jan. 2-May 11.....	22	9	
Province—				
Assiout.....	Mar. 25-May 9.....	6	6	Septicemic.
Assouan.....	Feb. 28.....	1	1	Do.
Benisouef.....	Apr. 24-May 8.....	6	1	
Fayoum.....	Feb. 17-Mar. 10....	7	2	
Gharbieh.....	Feb. 17-May 11.....	15	2	
Girgeh.....	Jan. 12-Mar. 30....	5		Do.
Keneh.....	Dec. 1.....	1		Do.
Do.....	Jan. 21-Feb. 28....	5	3	Pneumonic, 1 case, 1 death; septicemic, 1 case.
Minieh.....	Feb. 21-May 11....	8	4	Septicemic.
France:				
Dunkirk.....	Mar. 24.....		1	In hospital, from steamship City of Genoa, from Bombay.
Great Britain:				
Liverpool.....				Mar. 31, 1922: Finding of 3 plague-infected rats reported in warehouse in which material from steamship Warwickshire was stored. ¹
Greece:				
Preveza.....	Feb. 8.....			Outbreak. Port on the Ionian sea.
India:				
Bombay.....	Oct. 23-Dec. 21....	7	6	Oct. 23-Dec. 31, 1921: Cases, 11,229; deaths, 8,465. Jan. 1-Apr. 8, 1922: Cases, 35,739; deaths, 28,219.
Do.....	Jan. 1-Apr. 8.....	273	216	Corrected report.
Calcutta.....	Jan. 29-Apr. 22....	65	62	
Karachi.....	Nov. 6-Dec. 31....	5	5	
Do.....	Jan. 1-May 6.....	651	509	
Madras.....	Dec. 11-17.....	1		
Madras Presidency.....	Nov. 13-Dec. 31....	2,047	1,438	
Do.....	Jan. 1-May 6.....	4,262	2,973	
Rangoon.....	Oct. 1-Dec. 31....	139	129	
Do.....	Jan. 1-Apr. 22....	608	557	
Indo-China:				
Saigon.....				Nov. 6-Dec. 24, 1921: Rodent plague, 10. Jan. 8-Mar. 18, 1922: Rodent plague, 12.
Italy:				
Catania.....	Nov. 27.....	1	1	Total, Oct. 16-Nov. 27, 1921: Cases, 8 (of which 1 doubtful); deaths, 5. Jan.-Feb., 1922: 29 plague-infected rats found.
Naples (Province)—				
Torre Annunziata.....	Oct. 22-Dec. 27....	2		17 miles from city of Naples.
Venice.....	Oct. 27.....	1		

¹ Public Health Reports, Mar. 31, 1922, p. 784.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from December 31, 1921, to June 16, 1922—Continued.

PLAGUE—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Java.....				Islands of Java and Madoera: Nov. 1-Dec. 31, 1921: Deaths, 1,781. Jan. 1-Feb. 28, 1922: Deaths, 2,571.
East Java—				
Semarang—				
Kedoes district.....	Apr. 11.....			Epidemic.
Soerabaya.....	Oct. 30-Dec. 10.....	11	12	
Do.....	Jan. 1-Mar. 25.....	16	16	
Soerakarta—				
Karangnonka dist.....	Apr. 11.....			Epidemic.
Kemalang district.....	do.....			Do.
Madagascar:				
Tamatave.....	Feb. 6-12.....	1	1	
Tananarive.....	Jan. 23-Feb. 19.....	16	55	Bubonic, pneumonic, and septemic, Nov. 23, 1921-Feb. 27, 1922: Cases, 49; deaths, 80.
Mauritius (Island).....				Jan. 23-Feb. 16, 1922: Cases, 13; deaths, 3.
Port Louis.....	Oct. 29-Dec. 30.....	241	142	Plague-infected rats, 176; plague-infected cats, 36. (Corrected report.) Dec. 1-30, 1921: Dead rats found, 155; dead cats, 4.
Do.....	Dec. 31-Jan. 22.....	16	6	Dead rats found, Dec. 31, 1921-Jan. 11, 1922, 17.
Mesopotamia:				
Bagdad.....	Oct. 1-31.....	1	1	
Do.....	Feb. 1-Mar. 31.....	3	2	
Mexico:				
Tampico.....				Dec. 18-31, 1921: Infected rodents found, 5; total, Jan. 1-Dec. 3, 1921, infected rodents, 322. Jan. 1-May 20, 1922, 17 plague-infected rodents.
Vera Cruz.....				One infected rodent caught Dec. 5, 1921. Apr. 4-28, 1922: 3 infected rodents found.
Peru.....				Nov. 17-Dec. 31, 1921: Cases, 94; deaths, 35. Occurring in Callao, Huacho, Huaras, Lima, Magdalena Vieja, Paíta, Salaverry, and Sechura. Jan. 1-Feb. 28, 1922: Cases, 141; deaths, 62. (Corrected report to Feb. 15, 1922.) Mar. 16-31, 1922: Cases, 28; deaths, 14.
Localities—				
Bambamarca.....	Jan. 1-15.....			Present. Rural.
Barranco.....	Jan. 16-31.....	1		
Callao.....	Jan. 1-Feb. 28.....	7	4	Rural. Year, 1921: Deaths, 30.
Casma.....	Feb. 1-28.....	11	3	
Chiclayo.....	Jan. 16-Feb. 28.....	19	16	
Chilca.....	Jan. 16-Feb. 15.....	11	2	
Cutervo.....	Jan. 1-15.....	1		Rural.
Guadalupe.....	Jan. 1-31.....	7	2	
Huacho.....	Jan. 1-Feb. 15.....	3		
Hualgayoc.....	Jan. 16-31.....			Province. Present.
Huaral.....	Jan. 1-15.....	2		
Jayanca.....	do.....			Present.
Lambayeque.....	Jan. 16-Feb. 15.....	3	1	
Lima.....	Jan. 1-Feb. 28.....	14	4	In district, 20 cases, 6 deaths.
Mollendo.....	Feb. 1-28.....	3		
Pacasmayo.....	do.....	1		
Payta.....	Jan. 1-Feb. 28.....	28	21	
Piura.....	Feb. 1-15.....	1		
Salaverry.....	Jan. 16-31.....	1		
San Pedro.....	Jan. 1-15.....	1		
Sullana.....	Jan. 1-Feb. 28.....	3	3	
Trujillo.....	Feb. 1-15.....			Present.
Tumbes.....	do.....	4		
Portugal:				
Lisbon.....	Dec. 15.....	1	1	
Do.....	Feb. 1-28.....	6		Pneumonic; occurring in one family.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from December 31, 1921, to June 16, 1922—Continued.

PLAGUE—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Portuguese West Africa:				
Angola—				
Loanda.....	Oct. 9–Nov. 5.....		2	
Do.....	Jan. 29–Feb. 4.....		2	
Mossamedes.....	Feb. 14.....			Present. In vicinity Mar. 1–22, 1922: Cases, 11. No cases reported in city since Feb. 28, 1922.
Rhodes (Island) (Aegean Sea).....	Oct. 13.....	3	1	
Senegal:				
Dakar.....	Jan. 1–Mar. 31.....	4	1	
Siam:				
Bangkok.....	Oct. 23–Dec. 31.....	7	6	
Do.....	Jan. 8–Apr. 15.....	45	34	
Straits Settlements:				
Singapore.....	Nov. 6–Dec. 31.....	3	3	
Do.....	Jan. 15–Apr. 15.....	42	22	
Syria:				
Beirut.....	Oct. 9–Nov. 20.....	10	4	
Do.....	Mar. 27–Apr. 23.....	4		
Turkey:				
Constantinople.....	Jan. 1–7.....	1		Mar. 26–Apr. 1, 1922: One death.
Union of South Africa:				
Orange Free State—				
Boschrand farm.....	Jan. 15.....	3	3	10 miles from Kroonstad. Plague-infected mouse found.
Bothaville.....	Nov. 19.....			Plague mortality among rodents.
Gelukfontein farm.....	Feb. 25.....			Winburg district, vicinity of Ventersburg Road Station.
Granville farm.....	Mar. 1–15.....	4	4	In native herd boy.
Hoopstad.....	Dec. 4–10.....	1		12 miles from Bothaville. Plague infection found in rats on adjoining farm, week ended Feb. 4, 1922.
Klipfontein farm.....	Feb. 10.....	1	1	Plague-infected squirrel found.
Rietfontein farm.....	Feb. 17.....			
On vessels:				
S. S. City of Genoa.....	Mar. 9–15.....	4	2	At Suez and Port Said, Egypt, from Karachi and Bombay, India, for Plymouth, England. One fatal case at sea en route to Suez; 1 case on arrival. At Port Said, 2 cases, of which 1 fatal. At Dunkirk, France, Mar. 24, 1922. Several cases on arrival; 1 fatal case in hospital at Dunkirk.
S. S. Elpenor.....	Apr. 16–May 6.....			At Liverpool, England, from oriental ports; 1 plague rat, 1 plague mouse.
S. S. Polycarp.....	Feb. 3.....	1		At Para, Brazil, from Ceara, via Manaus, Maranham, and Para for New York.
S. S. Tango Maru.....	Dec. 31.....	1		At Thursday Island Quarantine, Australia, from Kobe, via Nagasaki, Hongkong, Manila, and Zamboanga.
S. S. Warwickshire.....	Feb. 12.....			At Liverpool, England, from Rangoon. Plague rats, 27; 1 plague mouse.

SMALLPOX.

Algeria:				
Algiers.....	Jan. 1–Mar. 31.....	4		
Arabia:				
Aden.....	Dec. 25–31.....		1	
Do.....	Jan. 8–May 6.....		6	
Asia Minor:				
Koviltza.....	Apr. 23–29.....	27		Interior.
Panderma.....	.....do.....	2		Do.
Smyrna.....	Jan. 15–Apr. 15.....	9		In district.
Bolivia:				
La Paz.....	Aug. 1–Dec. 31.....	60	41	
Do.....	Jan. 1–Feb. 28.....	32	21	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from December 31, 1921, to June 16, 1922—Continued.

SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Brazil:				
Bahia.....	Nov. 6-Dec. 17....	4		
Do.....	Jan. 8-Feb. 4.....	2		
Pernambuco.....	Apr. 2-8.....	1		
Rio de Janeiro.....	Nov. 13-Dec. 31....	13	2	
Do.....	Jan. 1-May 6.....	83	28	
Santos.....	Feb. 20-26.....		1	
Sao Paulo.....	Oct. 31-Dec. 25....	11		
Do.....	Dec. 26-Jan. 8.....	2		
British East Africa:				
Kenya Colony—				
Nairobi.....	Mar. 26-Apr. 20....	9		
Uganda.....	Aug. 1-Dec. 31....	33	6	
Do.....	Jan. 1-31.....	36	3	
Canada:				
British Columbia—				
Vancouver.....	Dec. 25-31.....	3		
Do.....	Jan. 29-Feb. 4.....	1		
Victoria.....	Mar. 12-18.....	1		
Manitoba.....				Year 1921: Cases, 71.
Winnipeg.....	Nov. 20-Dec. 3.....	2		
Do.....	Apr. 2-8.....	3		
New Brunswick—				
Charlotte County.....				Dec. 17, 1921: 31 cases occurring at Andersonville and Blacks Harbor. Dec. 18-24, 1921: Cases, 3. Dec. 25-31, 1921: Cases, 2. Feb. 19-May 13, 1922: Cases, 3.
St. Stephen.....	Dec. 11-17.....	2		
Madawaska County.....	Apr. 30-May 13....	5		
Restigouche County.....				Dec. 11-31, 1921: Cases, 3. Feb. 12-25, 1922: Cases, 4. 20 miles from Campbellton.
Charlo.....	Feb. 19-25.....	2		
Westmoreland County.....	Mar. 5-Apr. 1.....	22		
York County.....	Dec. 11-17.....	1		
Do.....	Jan. 29-Feb. 4.....	1		
Ontario.....				Dec. 1-31, 1921: Cases, 128. Jan. 1-31, 1922: Cases, 170. Feb. 1-Apr. 30, 1922: Cases, 377.
Fort William and Port Arthur.....	Jan. 1-21.....	3		
Hamilton.....	Jan. 22-Mar. 25....	4		
Kingston.....	Jan. 17-Feb. 11....	5		Jan. 16-20, 1922: Two cases reported.
Niagara Falls.....	Dec. 11-24.....	2		
Do.....	Jan. 15-June 3.....	13		
North Bay.....	Feb. 12-May 13....	4		
Ottawa.....	Dec. 11-24.....	17		Feb. 19-25, 1922: Cases, 6.
Do.....	Jan. 1-June 3.....	60		
Sanit Ste. Marie.....	Jan. 15-21.....	1		
Toronto.....	Dec. 11-24.....	4		
Do.....	Jan. 1-June 3.....	122		
Windsor.....	Jan. 8-Mar. 4.....	3		
Quebec—				
Montreal.....	Dec. 11-24.....	1		
Saskatchewan—				
Regina.....	Jan. 1-Feb. 11....	4		
Saskatoon.....	Dec. 1-18.....	6		
Do.....	Feb. 5-18.....	3		
Canal Zone:				
Ancon.....				Admitted to hospital by transfer from Panama, Nov. 30, 1921, 1 case. Arrived on sailing vessel from a village on south coast.
Ceylon:				
Colombo.....	Nov. 27-Dec. 3.....	1		Port case.
Do.....	Jan. 29-Apr. 22....	9		One port case.
Chile.....				Jan.-Sept., 1921: Cases, 5,500 (approximately); deaths, 2,500 (approximately). Nov. 15-21, 1921: Diffused in southern Provinces; not epidemic.
Concepcion.....	Nov. 23-Dec. 26....		25	Nov. 15-21, 1921: Present. In vicinity at Hualqui, cases, 32; deaths, 5. Dec. 4-17, 1921: Present.
Do.....	Dec. 27-Mar. 13....		42	Present.
Coronel.....	Nov. 15-Dec. 17....			Present.
Curanilahue.....	Nov. 15-21.....	4		
Lota.....				Oct. 28, 1921-Jan. 31, 1922: Cases, 879; deaths, 338.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from December 31, 1921, to June 16, 1922—Continued.

SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Chile—Continued.				
Ollague.....	Mar. 12-25.....	1		Reported Mar. 16.
Osorno.....	Nov. 15-Dec. 24.....	6		From beginning of outbreak to Feb. 15, 1922: Cases, 87.
Talcahuano.....	Jan. 29-Feb. 18.....	5		Jan. 8-28, 1922. Present.
Do.....	Nov. 15-21.....	9		From beginning of outbreak to Feb. 15, 1922: Cases, 122.
Temuco.....	Oct. 23-Dec. 31.....		91	
Valparaiso.....	Jan. 1-Mar. 25.....		39	
China:				
Amoy.....	Nov. 16-Dec. 31.....		7	Nov. 23-29, 1921: Present. Jan. 22-28, 1922: Present.
Do.....	Jan. 1-Apr. 22.....		22	
Antung.....	Nov. 28-Dec. 18.....	4	1	
Do.....	Mar. 19-26.....	1		
Canton.....	Dec. 1-31.....			Present.
Do.....	Feb. 1-Mar. 31.....			Do.
Changsha.....	Jan. 16-22.....	1		
Chungking.....	Nov. 6-Dec. 31.....			Do.
Do.....	Jan. 1-Apr. 22.....			Do.
Dairen.....	Mar. 13-Apr. 9.....	3		Manchuria.
Poochow.....	Nov. 6-Dec. 31.....			Present.
Do.....	Jan. 1-Apr. 1.....			Do.
Hankow.....	Nov. 13-Dec. 31.....			Do.
Do.....	Jan. 1-21.....	2		
Harbin.....	Nov. 14-Dec. 11.....	5		
Do.....	Dec. 26-Apr. 16.....	7		Manchuria.
Hongkong.....	Dec. 3-31.....	5		
Do.....	Jan. 1-Apr. 22.....	108	81	
Mukden.....	Nov. 20-Dec. 31.....			Manchuria. Present.
Do.....	Jan. 15-Apr. 15.....			Do.
Nanking.....	Nov. 20-Dec. 17.....			Present.
Do.....	Jan. 15-Apr. 22.....			Do.
Shanghai.....	Oct. 31-Dec. 31.....	23	194	Cases, foreign; deaths, Chinese and foreign. Population: Native, 790,000; foreign, 24,000. Corrected report.
Do.....	Jan. 2-Apr. 30.....	25	510	Cases, foreign; deaths, native. Jan. 14, 1922: Seriously prevalent.
Tientsin.....	Dec. 11-17.....	2		In Mission Hospital.
Tsingtau.....	Jan. 1-Apr. 9.....	38	14	
Chosen (Korea):				
Fusan.....	Dec. 1-31.....	3	1	
Do.....	Jan. 1-Apr. 30.....	214	59	
Gensan.....	Feb. 1-28.....	1		
Seoul.....	Jan. 1-Mar. 31.....	12	5	
Colombia:				
Cartagena.....	Nov. 22-28.....		1	
Santa Marta.....	Feb. 19-25.....			Present.
Cuba.....				Dec. 4-31, 1921: Cases, 361. Jan. 1-31, 1922: Cases, 257.
Antilla.....	Dec. 12-31.....	3		At Preston.
Do.....	Jan. 9-Feb. 4.....	13	1	
Cienfuegos.....	Jan. 22-May 13.....	15	1	Two cases from outside city limits. Apr. 16-22, 1922: Cases, 6, found at Senado, about 25 miles distant.
Matanzas.....				In Province, Apr. 16-30, 1922.
Nuevitas.....	Apr. 10-16.....	3		
Santiago.....	Jan. 1-May 31.....	21	1	
Dominican Republic:				
Puerto Plata.....	Jan. 13.....	100	5	Oct. 1-31, 1921: Cases, 653; deaths, 54. Jan. 2-Feb. 4, 1922: Cases, 6,922; deaths, 185. May 14-20, 1922: Cases, 258; deaths, 22.
San Pedro de Macoris.....	Nov. 20-Dec. 31.....	31	1	In district, widely diffused, with 1,000 estimated cases, with 100 deaths.
Do.....	Jan. 14-May 20.....	250	9	Estimate of about 500 cases of smallpox in the district of Macoris: of these, 50 within the city limits.
				Including vicinity. In surrounding country, Feb. 15-25: 66 cases. Feb. 23-Apr. 1: About 60 cases; Apr. 30, 75 cases; May 6-13: 63 cases (estimated) present.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from December 31, 1921, to June 16, 1922—Continued.

SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Dominican Republic—Contd. Santo Domingo.....	Nov. 15-Dec. 5.....			In district, 401 cases, estimated. Dec. 17-24, 1921: Present in vicinity. Jan. 9-16, 1922: In surrounding country, 1,745 cases (estimated). Mar. 19-Apr. 1, 1922: About 20 cases, with 1 death, in surrounding country.
Do.....	May 14-20.....	72		Apr. 2-15, 1922: Cases, 25; deaths, 8. Apr. 23-29: Cases, 29; deaths, 4. Apr. 30-May 6, 1922: Present, with 4 reported deaths.
Ecuador: Guayaquil.....	Nov. 16-Dec. 3.....	7		And vicinity.
Do.....	Jan. 1-Apr. 15.....	5		
Egypt: Alexandria.....	Nov. 26-Dec. 2.....	1	1	
Do.....	do.....	2		
Port Said.....	Dec. 20-26.....	1		Dec. 16-23, 1921: 1 case.
Do.....	Jan. 22-Apr. 29.....	2		
Finland: Do.....				Nov. 16-30, 1921: 1 case. Feb. 4-15, 1922: Cases, 19. Mar. 1-Apr. 30, 1922: Cases, 38.
Fiume.....				Dec. 27, 1921-Jan. 2, 1922: Cases, 2.
France: Bordeaux.....	Mar. 31-Apr. 6.....		1	
Great Britain: Liverpool.....	May 14-20.....	2		One case from vessel and one contact.
Manchester.....	Jan. 1-7.....	4		
Nottingham.....	Dec. 4-31.....	18		
Do.....	Jan. 8-May 6.....	15		
Sheffield.....	Apr. 23-29.....	3		
Swansea.....	Jan. 17-23.....	2		Imported on vessel from Persian Gulf.
Greece: Saloniki.....	Mar. 19-Apr. 9.....	14	9	
Haiti: Cape Haitien.....	Dec. 11-24.....	8		Jan. 22-May 6, 1922: Present.
Do.....	Jan. 1-Feb. 18.....	21	1	
Port au Prince.....	Dec. 11-31.....			Present.
Do.....	Jan. 15-21.....	2		
India: Bombay.....	Oct. 23-Dec. 31.....	3	2	Oct. 2-8, 1921: Deaths, 28. Oct. 23-Nov. 19, 1921: Deaths, 266.
Do.....	Jan. 1-Apr. 8.....	43	15	Nov. 27-Dec. 31, 1921: Deaths, 533. Jan. 1-28, 1922: Deaths, 700. Mar. 29-Feb. 11, 1922: Deaths, 540.
Calcutta.....	Nov. 13-Dec. 31.....	37	28	
Do.....	Jan. 1-Apr. 22.....	430	297	
Karachi.....	Nov. 11-Dec. 31.....	28	9	
Do.....	Jan. 1-May 6.....	306	178	
Madras.....	Nov. 13-Dec. 31.....	183	59	
Do.....	Jan. 1-May 6.....	1,709	615	
Rangoon.....	Oct. 1-Dec. 31.....	6		
Do.....	Jan. 15-Apr. 22.....	110	8	
Indo-China: Saigon.....	Dec. 18-24.....	1	1	City and district.
Do.....	Jan. 8-Mar. 18.....	17	8	Do.
Italy: Catania.....	Feb. 20-26.....	1		In Province.
Genoa.....	Nov. 10-20.....	1		
Messina— Messina.....	Nov. 23-Dec. 4.....	1		
Pettino.....	Nov. 11-Dec. 4.....	2		
Venice.....	Jan. 30-Feb. 5.....	2		
Japan: Kobe.....	Jan. 23-Apr. 30.....	2	2	
Nagasaki.....	Mar. 13-Apr. 30.....	2		
Taiwan Island.....	Dec. 1-31.....	2	1	
Do.....	Feb. 14-Mar. 10.....	2	1	
Yokohama.....	Jan. 9-Apr. 23.....	4		Corrected report.
Java: East Java— Soerabaya.....	Jan. 1-7.....	4		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from December 31, 1921, to June 16, 1922—Continued.

SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Java—Continued.				
West Java—				
Bandoeng.....	Nov. 18-Dec. 8.....	2	.....	City and Province. In Province: Cases, 23; deaths, 4; 13 cases, with 3 deaths, not locally stated. Feb. 3-Mar. 30, 1922: Cases, 21; deaths, 5.
Batavia.....	Nov. 18-Dec. 22.....	11	9	
Do.....	Dec. 30-Apr. 20.....	7	4	
Buitenzorg.....	Nov. 25-Dec. 8.....	7	1	
Krawang.....	Nov. 18-24.....	1	.....
Lebak.....	Nov. 18-Dec. 8.....	7	4	
Pandeglang.....	Nov. 25-Dec. 1.....	.....	1	
Tangerang.....	Nov. 18-Dec. 8.....	5	1	
Liberia:				
Grand Bassa County.....	Nov. 30.....	.....	.....	Present at Lower Buchanan.
Mesopotamia:				
Bagdad.....	Oct. 1-Nov. 30.....	117	50	Epidemic, with high mortality, November, 1921.
Do.....	Feb. 1-23.....	6	4	
Mexico:				
Chihuahua.....	Dec. 5-11.....	.....	1	Including municipalities in Fed- eral District. Do. Epidemic. Apr. 28, estimated about 16 deaths daily. Apr. 25-May 1, 1922: 9 deaths, in children. May 10-16, 2 deaths. From San Salvador, Zacatecas, 1; from Tampico, 1.
Do.....	Jan. 23-Feb. 19.....	.....	2	
Guadalajara.....	Nov. 1-Dec. 31.....	6	7	
Do.....	Jan. 1-Apr. 30.....	41	.....
Manzanillo.....	Apr. 25-May 1.....	.....	1	
Mexico City.....	Nov. 20-Dec. 31.....	64	.....
Do.....	Jan. 1-Apr. 22.....	312	.....
Monterey.....	Apr. 12.....	.....	2	
Saltillo.....	Jan. 29-May 6.....	.....	9	
San Luis Potosi.....	Dec. 18-24.....	.....	2	
Do.....	Jan. 8-May 20.....	.....	20	
Torreón.....	Dec. 1-31.....	.....	134	
Do.....	Jan. 1-Feb. 28.....	.....	82	
Newfoundland:				
St. John.....	Feb. 4-10.....	1	.....
Nicaragua:				
Managua.....	Mar. 5.....	.....	.....	Present.
Palestine:				
Jerusalem.....	Jan. 10-Feb. 20.....	27	.....
Panama:				
Bocas del Toro Province—				
Susuba.....	Jan. 18-Feb. 8.....	11	.....	Village 24 miles from Almirante.
Chiriqui Province.....	Dec. 22.....	.....	.....	Present.
Do.....	Jan. 26.....	.....	.....	Present with center of prevalence at Boquete Bajo. At Boquete Bajo, Jan. 22-Mar. 23, 1922, 59 admissions to lazaretto. On Mar. 20, 1922, 16 cases of small- pox, confluent type.
Panama.....	Dec. 14.....	1	.....	On Dec. 21, 1921, 1 additional case from country district of Sabana admitted to hospital. Total admissions, Jan. 1-Dec. 21, 1921, 207.
Do.....	Apr. 26-May 11.....	2	.....	1 case imported May 11 from Chiriqui Province.
Persia:				
Teheran.....	.....	.....	.....	May 22-Nov. 22, 1921: Deaths, 23.
Peru:				
Lima.....	Nov. 1-Dec. 31.....	.....	3	
Poland.....	.....	.....	.....	Aug. 14-Dec. 31, 1921: Cases, 578; deaths, 146. Jan. 1-Mar. 25, 1922: Cases, 677, deaths, 182. Exclusive of Brest-Litovsk, Minsk, and Wilno districts.
Silesia.....	May 2.....	.....	.....	Epidemic.
Portugal:				
Lisbon.....	Nov. 13-Dec. 31.....	48	12	1 death in January, 1 in Febru- ary, 7 deaths in March.
Do.....	Jan. 1-May 13.....	215	9	
Portuguese East Africa:				
Lourenço Marques.....	Oct. 1-Nov. 5.....	2	4	
Portuguese West Africa:				
Angola—				
Loanda.....	Oct. 9-Dec. 31.....	.....	7	
Do.....	Jan. 1-Mar. 25.....	.....	6	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from December 31, 1921, to June 16, 1922—Continued.

SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Rumania:				
Bucharest.....	Nov. 1-30.....	.....	33	
Cahul.....	Jan. 1-31.....	1		District.
Chisinau.....	Dec. 1-31.....	33		Do.
Do.....	Feb. 1-28.....	17		Do.
Russia:				
Eathonia.....	Oct. 1-Dec. 31.....	38		
Do.....	Feb. 1-Mar. 31.....	7		
Lettonia.....	.....do.....	75		Name of country officially
Do.....	Jan. 1-Feb. 28.....	38		changed from Latvia to Let-
				tonia.
Senegal:				
Dakar.....	.....do.....	5	3	
Serbia:				
Belgrade.....	Oct. 2-Nov. 26.....	16	4	
Siam:				
Bangkok.....	Oct. 23-Nov. 5.....	1		
Do.....	Mar. 19-25.....	1		
Siberia:				
Vladivostok.....	Feb. 22-Mar. 31.....	3	1	
Spain:				
Barcelona.....	Jan. 8-14.....	.....	1	
Corunna.....	Apr. 2-May 6.....	.....	2	
Huelva.....	Oct. 1-Dec. 31.....	.....	3	
Do.....	Jan. 1-Mar. 31.....	1	3	
Malaga.....	Nov. 1-Dec. 31.....	.....	60	
Do.....	Jan. 1-31.....	.....	8	
Seville.....	Nov. 16-Dec. 31.....	.....	7	
Do.....	Jan. 8-Apr. 20.....	.....	82	
Valencia.....	Jan. 27-Mar. 25.....	5	1	Mar. 9-15, 1922: One case.
Straits Settlements:				
Singapore.....	Nov. 6-Dec. 24.....	49	13	
Do.....	Jan. 1-Apr. 22.....	226	47	
Switzerland:				
Glarus, Canton.....	Dec. 10.....	.....	.....	Epidemic.
Lucerne.....	Feb. 1-28.....	12		
St. Gall.....	Feb. 12-18.....	1		
Zurich.....	Dec. 10.....	2		In vicinity.
Do.....	Mar. 12-Apr. 8.....	6		Apr. 1-30: Cases, 38.
Syria:				
Adana.....	Dec. 18-24.....	.....	.....	Present.
Do.....	Jan. 1-14.....	.....	.....	Do.
Aleppo.....	Dec. 18-24.....	.....	.....	Do.
Do.....	Jan. 1-Apr. 15.....	.....	.....	Do.
Alexandretta.....	.....do.....	.....	2	Do.
Beirut.....	Oct. 9-Nov. 13.....	5	2	
Do.....	Jan. 8-Apr. 16.....	25	11	Dec. 29, 1921-Jan. 4, 1922: Cases, 14; deaths, 2.
Cilicia.....	Jan. 8-Feb. 4.....	.....	.....	Present.
Diarbekir.....	Dec. 18-24.....	.....	.....	Do.
Do.....	Jan. 1-Feb. 4.....	.....	.....	Do.
Mersina.....	Dec. 18-24.....	.....	.....	Do.
Do.....	Jan. 1-7.....	.....	.....	Do.
Urfa.....	Dec. 18-24.....	.....	.....	Do.
Do.....	Jan. 1-Feb. 4.....	.....	.....	Do.
Tunis:				
Tunis.....	Nov. 26-Dec. 23.....	17	15	
Do.....	Jan. 1-Apr. 8.....	4	6	
Turkey:				
Constantinople.....	Nov. 27-Dec. 24.....	20	4	
Do.....	Jan. 15-May 6.....	151	30	
Union of South Africa:				
				Nov. 1-Dec. 31, 1921: Cases, 342; deaths, 6 (colored); white, 10 cases. Jan. 1-Feb. 28, 1922: Cases, 37; deaths, 3.
Cape Province.....	Nov. 5-Dec. 31.....	.....	.....	Outbreaks. Nov. 1-Dec. 31, 1921: Cases, 42; death 1 (colored).
Do.....	Jan. 8-Apr. 1.....	.....	.....	Outbreaks.
Natal.....	.....do.....	.....	.....	Outbreaks. Nov. 1-Dec. 31, 1921: Cases, 209; deaths, 5 (colored).
Durban.....	Apr. 2-8.....	1		Outbreaks. Nov. 1-Dec. 31, 1921: Cases, 8 (colored).
Orange Free State.....	Oct. 23-Dec. 24.....	.....	.....	Outbreaks.
Do.....	Feb. 5-25.....	.....	.....	Natives.
Southern Rhodesia.....	Dec. 29-Apr. 10.....	330		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from December 31, 1921, to June 16, 1922—Continued.

SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Union of South Africa—Contd.				
Transvaal.....	Oct. 23-Dec. 31.....			Outbreaks.
Do.....	Jan. 1-Mar. 23.....			Outbreaks. Dec., 1921: Cases, 15.
				Nov. 1-Dec. 31, 1921: Cases, 22
				(colored) Among white population, 8 cases, State not designated.
Johannesburg District..	Dec. 1-31.....	2		Outbreaks.
Do.....	Jan. 1-Feb. 28.....			
Venezuela:				
Ciudad Bolivar.....	Mar. 22.....	3		
Virgin Islands:				
St. Thomas.....	June 6.....	1		
Yugoslavia.....				July 3-30, 1921: Cases, 37.
Bosnia Herzegovina.....	July 3-9.....	2		
Croatia Slavonia.....	do.....	1		
Dalmatia.....	do.....	1		
Serbia.....	do.....	3		
Belgrade.....	Dec. 11-17.....	4		
Do.....	Jan. 1-Feb. 18.....	6		
Slovenia.....	July 3-9.....	1		
Vojvodina.....	do.....	3		
On vessels:				
S. S. Empire State.....	Apr. 7.....	1		At Honolulu, Hawaii, Mar. 31.
				In Chinese woman, embarked at Hongkong, Mar. 15, unvaccinated; arrived Shanghai Mar. 19, states did not go ashore; at Kobe Mar. 22; left Yokohama Mar. 24. Case was passed on inspection; developed Apr. 5, 1922.
S. S. Victoria.....	Jan. 16.....	1	1	At Thursday Island Quarantine, Australia. Vessel left Hongkong Jan. 3; case isolated Jan. 10. Vessel left for Townsville, Sydney, and Melbourne. Released at Melbourne Feb. 4, 1922.
S. S. West O'Rowa.....	Jan. 5-8.....	3	1	At Kobe, Japan, from Shanghai, China.
S. S. —.....	Jan. 17-23.....	2		At Swansea, Wales, from Persian Gulf.
S. S. —.....	May 14-20.....	2		At Liverpool, England; from vessel.

TYPHUS FEVER.

Algeria:				
Algiers.....	Nov. 1-Dec. 31.....	3		
Do.....	Jan. 11-May 10.....	20	1	
Oran.....	Dec. 21-31.....	1		
Do.....	Jan. 1-Apr. 20.....	24	14	
Argentina:				
Rosario.....	Mar. 1-31.....		1	
Asia Minor:				
Brousa.....	Jan. 15-21.....	1		
Smyrna.....	Apr. 15-21.....	1		
Austria:				
Vienna.....	Dec. 4-31.....	10		
Do.....	Jan. 1-Apr. 15.....	10	1	
Bolivia:				
La Paz.....	Aug. 1-Dec. 31.....	121	98	
Do.....	Jan. 1-31.....	15	12	
Brazil:				
Sao Paulo.....	Feb. 6-12.....	12	2	
Bulgaria:				
Sofia.....	Dec. 18-24.....	1		
Do.....	Feb. 12-Apr. 8.....	3		
Chile:				
Concepcion.....	Nov. 22-Dec. 26.....		3	
Do.....	Jan. 3-30.....		3	
Talcahuano.....	Jan. 29-Feb. 18.....	3		
Valparaiso.....	Oct. 23-Nov. 26.....		6	
Do.....	Jan. 1-7.....		1	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from December 31, 1921, to June 16, 1922—Continued.

TYPHUS FEVER—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.	
China:					
Antung.....	Dec. 26-Jan. 1.....	1		Jan. 23, 1922: Reported extending from Soviet Russia along railway line to maritime Provinces.	
Do.....	Feb. 6-Apr. 9.....	9			
Harbin.....	Nov. 7-Dec. 25.....	12			
Do.....	Dec. 26-Apr. 16.....	45			
Czechoslovakia:					
Prague.....	Jan. 22-Apr. 15.....	4		In district, at Zoppot. In merchant from Warsaw.	
Danzig (free city).....	Feb. 23.....	1			
Egypt:					
Alexandria.....	Nov. 19-Dec. 31.....	3	1	Corrected report.	
Do.....	Jan. 15-Apr. 22.....	23	6		
Cairo.....	Oct. 1-Dec. 31.....	16	14		
Do.....	Jan. 1-Mar. 4.....	18	8		
Port Said.....	Jan. 22-Apr. 8.....	3			
Finland:					
Helsingfors.....	Jan. 1-31.....	1		In carrier from Moscow.	
Germany:					
Berlin.....	Apr. 8-22.....		3	Including district. In persons returning from Russia.	
Breslau.....	Dec. 25-31.....	2	1		
Do.....	Jan. 1-Apr. 30.....	56	9		
Frankfort-on-Oder.....	Feb. 16.....	26			
Hamburg.....	Dec. 11-17.....	4			
Königsberg.....	Apr. 16-22.....		1		
Great Britain:					
Birkenhead.....	Apr. 6.....	13	3	Vicinity of Liverpool.	
Glasgow.....	Dec. 25-31.....	1		Stated to have probably been contracted in Warsaw.	
London.....	Apr. 29.....	1			
Greece:					
Patras.....	Apr. 3-9.....			One death, recurrent typhus. Among Russian refugees, 16 cases, 5 deaths.	
Saloniki.....	Jan. 23-Apr. 30.....	122	30		
Mesopotamia:					
Bagdad.....	Oct. 1-Dec. 31.....	3	9		
Do.....	Feb. 1-Mar. 31.....	1	3		
Mexico:					
Mexico City.....	Nov. 20-Dec. 31.....	242		Including municipalities in Federal District.	
Do.....	Jan. 1-Apr. 22.....	330		Do.	
San Luis Potosi.....	Dec. 18-24.....		1	Dec. 25-31, 1921: Present.	
Do.....	Jan. 8-Feb. 25.....			Present, 1 death.	
Palestine:					
Jerusalem.....	Dec. 27-May 1.....	18		Aug. 14-Nov. 5, 1921: Cases, 2,390; deaths, 173. Nov. 6-Dec. 3, 1921: Cases, 1,512; deaths, 105. Nov. 20-Dec. 10, 1921: Cases, 1,162; deaths, 89. Dec. 4-31, 1921: Cases, 3,600; deaths, 313. Jan. 1-28, 1922: Cases, 6,452; deaths, 643; recurrent typhus—cases, 6,268; deaths, 330. Jan. 29-Mar. 25, 1922: Cases, 13,825; deaths, 1,027. Recurrent typhus: Cases, 15,944; deaths, 587. All statistics are exclusive of Brest-Litovsk, Minsk, and Wilno districts. Jan. 1-7, 1922: Cases, 61.	
Poland:					
District—					
Bialystok.....	Nov. 20-Dec. 10.....	116	3		
Do.....	Jan. 1-7.....	253			
Galicia—					
Lemberg.....	Jan. 3.....	229			
Kielce.....	Nov. 20-Dec. 10.....	31	8		
Do.....	Jan. 1-7.....	28			
Krakow.....	Nov. 20-Dec. 10.....	45	6		
Do.....	Jan. 1-7.....	53			
Lodz.....	Nov. 20-Dec. 10.....	67			
Do.....	Jan. 1-7.....	41			
Lublin.....	Nov. 20-Dec. 10.....	59			
Do.....	Jan. 1-7.....	147			
Lwow.....	Nov. 20-Dec. 10.....	121	16		
Nowogrod.....	do.....	249	15		
Polesia.....	do.....	83	5		
Do.....	Jan. 1-7.....	450			
Posen.....	do.....	1			

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from December 31, 1921, to June 16, 1922—Continued.

TYPHUS FEVER—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Poland—Continued.				
District—Continued.				
Stanislawow.....	Nov. 20-Dec. 10...	88	8	
Do.....	Jan. 1-7.....	54		
Tarnopol.....	Nov. 20-Dec. 10...	86	17	
Do.....	Jan. 1-7.....	28		
Volhynia.....	Nov. 20-Dec. 10...	89	4	
Do.....	Jan. 1-7.....	107		
Warsaw.....	Nov. 20-Dec. 10...	81	2	
Do.....	Jan. 1-7.....	32		
Warsaw City.....	Nov. 20-Dec. 10...	47	5	
Do.....	Jan. 1-7.....	67		Feb. 26-Apr. 22, 1922: Cases, 255. Occurring in permanent and transient residents.
Portugal:				
Oporto.....	Jan. 8-May 6.....	46	2	
Rumania:				
Bucharest.....	Nov. 1-30.....	3		
Cahul.....	Jan. 1-Feb. 28.....	7		District.
Chisinau.....	Nov. 1-Dec. 31.....	23		District. Dec. 1-31, 1921: Recurrent typhus; cases, 19.
Do.....	Feb. 1-23.....	10		
Russia.....				Nov. 23-Dec. 10, 1921: In Soviet Russia, cases, 7,681.
Esthonia.....	Oct. 1-Dec. 31.....	53		
Do.....	Jan. 1-Mar. 31.....	97		Recurrent typhus, 81 cases.
Lettonia.....	Oct. 1-Dec. 31.....	341		Corrected report Oct. 1-Nov. 30, 1921: Cases, 127.
Do.....	Jan. 1-Feb. 18.....	456		
Libau.....	Jan. 15-Feb. 1.....	4		
Lithuania.....	Jan. 1-31.....	814	73	Recurrent typhus: Cases, 357; deaths, 12. Typhus: Feb. 19, 1922, 403 cases, vicinity of Kovno, with mortality of 7 per cent.
Perm.....	Nov. 22-Dec. 10...	1,403		Oct. 1-31, 1921: Cases, 830. Nov. 1-30, 1921: Cases, 2,330.
Saratov District—				
Markstadt.....				Sept. 1-Dec. 31, 1921: Cases, 1,987; mortality, about 10 per cent; hospital cases.
Serbia:				
Belgrade.....	Oct. 2-Nov. 26...	3	2	
Siberia.....				Jan. 23, 1922: Present in western districts.
Chita.....	Dec. 26.....			Epidemic.
Vladivostok.....	Dec. 25-31.....	5	1	
Do.....	Mar. 25-31.....	2	1	
Spain:				
Madrid.....	Dec. 1-31.....		1	
Do.....	Jan. 1-Apr. 30.....		24	Corrected report.
Syria.....				Apr. 16-22, 1922: Reported present in the interior cities.
Aleppo.....	Mar. 19.....			Present. Apr. 23-May 13, 1922: Present in interior localities.
Diarbekir.....	Mar. 5-Apr. 15.....			Present.
Mardin.....	do.....			Do.
Tunis:				
Tunis.....	Feb. 5-Mar. 25...	4	3	
Turkey:				
Constantinople.....	Nov. 20-Dec. 31...	19		
Do.....	Jan. 1-May 6.....	131	2	
Union of South Africa.....				Nov. 1-Dec. 31, 1921: Cases, 1,368; deaths, 205 (colored). White 20 cases; deaths, 4. Jan. 1-30, 1922: Cases, 945; deaths, 131, occurring in native population; 14 cases with 4 deaths occurring in white population.
Cape Province.....				Oct. 23-Dec. 24, 1921: Outbreaks, Nov. 1-Dec. 31, 1921: Cases, 1,053; deaths, 158 (colored). Among white population, 19 cases, 3 deaths.
Do.....				Jan. 1-Mar. 25, 1922: Outbreaks. Jan. 1-Feb. 23, 1922: Cases, 688; deaths, 90 (colored); cases, 11; deaths, 4 (among white population).
East London.....	Oct. 30-Dec. 24...	3		One death of European at Jansenville, Dec. 6, 1921.
Do.....	Jan. 29-Feb. 11...	2		Natives.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from December 31, 1921, to June 16, 1922—Continued.

TYPHUS FEVER—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Union of South Africa—Contd.				
Natal.....	Nov. 5-Dec. 17.....			Outbreaks. Stated to be prevalent only in Newcastle district. Nov. 1-Dec. 31, 1921: Cases, 135; deaths, 25 (colored). Jan. 1-Feb. 28, 1922: Cases, 41; deaths, 10 (colored). Among white population 3 cases, 1 death.
Durban.....	Jan. 15-21.....	1		Imported.
Orange Free State.....	Nov. 13-Dec. 31.....			Outbreaks. Nov. 1-Dec. 31, 1921: Cases, 158; deaths 21, (colored).
Do.....	Jan. 1-Apr. 1.....			Outbreaks, Jan. 1-Feb. 28, 1922: Cases, 176; deaths, 25.
Transvaal.....	Jan. 8-Apr. 1.....			Outbreaks. Nov. 1-Dec. 31, 1921: Cases, 35; deaths, 4 (colored). White, 1 case, 1 death. Jan. 1-Feb. 28, 1922: Cases, 40; deaths 3 (colored).
Johannesburg District..	Jan. 12-Feb. 28....	35	11	
Venezuela:				
Maracaibo.....	Dec. 20-20.....		1	
Yugoslavia.....				July 3-30, 1921: Cases, 13.
Bosnia-Herzegovina.....	July 3-9.....	1		
Croatia Slavonia—				
Zagreb.....	Jan. 1-Mar. 25.....	4		
Montenegro.....	July 3-9.....	3		

YELLOW FEVER.

Brazil:				
Bahia.....	Apr. 16-22.....	1	1	
Pernambuco.....	Feb. 19-Mar. 18.....	3	2	
Mexico.....				Year 1921: Cases, 115; deaths, 53.
Colima (State).....				Year 1921: Cases, 7; deaths, 4.
Colima.....	Oct. 27.....	4	3	
Manzanillo.....	Aug. 21.....	3	1	
Jalisco (State).....				Year 1921: Cases, 13; deaths, 7.
Guadalajara.....	Nov. 1-30.....	1	1	Imported.
Puerta Vallarta (Las Penas).....	Oct. 5-Dec. 17.....	13	5	
Do.....	Jan. 22-31.....	3	1	
Tonila.....	Aug. 31.....	1	1	
Oaxaca (State).....				
Rincon Antonio.....	Jan. 10.....	1	1	
Quintana Roo (Territory).....				
Payo Obispo.....	Aug. 8.....	1	1	
Sinaloa (State).....				Year 1921: Cases, 18; deaths, 9.
Culiacan.....	Sept. 17.....	4	1	
Guamuchil.....	Oct. 10.....	1		
Mazatlan.....	Aug. 21.....	1	1	Imported.
Palmar de los Leales.....	Sept. 30.....	12	7	
Tamaulipas (State).....				Year 1921: Cases, 1; deaths, 1.
Tampico.....	Jan. 11.....	1	1	
Vera Cruz (State).....				Year 1921: Cases, 75; deaths, 31.
Alamo.....	June 21.....			Oil camp.
Alvarado.....	July 3.....	1	1	
Barra de Penn.....	July 18.....	1	1	
Cordoba.....	Sept. 22.....	5	3	
Cosamaloapam.....	July 18.....	14	6	
Nogales.....	Oct. 28.....	1	1	
Orizaba.....	do.....	1		
Papantla.....	Jan. 14.....	6	3	
Providencia.....	Oct. 28.....	3		
Purga.....	Feb. 7.....	1	1	
Rancho de Santa Rosa.....	Oct. 8.....	2		
Rancho "El Jaguey".....	Sept. 14.....	2	2	
San Cristobal.....	Mar. 24.....	1		
San Pablo (Papantla).....	Sept. 12.....	1		
San Ildefonso.....	Oct. 17.....	2		
Tierra Blanca.....	Sept. 24-Nov. 12.....	4	3	
Tlacoatlpan.....	Sept. 14.....	1	1	
Tuxpau.....	Jan. 3.....	8	2	
Vera Cruz.....	Jan. 15.....	18	7	Two of these cases imported. Dec. 20-26, 1921: Cases, 1; deaths, 1, imported. March, 1922: One case on plantation 105 miles from port of Vera Cruz.